

JULY 6, 1953

7

STEEL

THE WEEKLY MAGAZINE OF METALWORKING



Die Castings

Mold Shape of Things To Come, p. 106

- ✓ COMPONENT BUYERS They Assume Control, p. 63
- ✓ BLUEPRINT FOR HANDLING Profits in Simplicity, p. 128

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Designed to Work **Together**

Texrope Drives

Texrope V-belt drives, the original multiple V-belt drive, are available in a complete range of types and sizes, both fixed and variable speed. More and more machine designers are finding the moderate cost of *Vari-Pitch* sheaves is returned many times in increased machine versatility and more precise quality control. With either Stationary Control or Motion Control *Vari-Pitch* sheaves, speeds can be accurately adjusted quickly and easily over a wide range.

Motors

The increasingly high cost of maintenance labor has made the use of totally-enclosed, fan-cooled motors on machine tools more popular — and more profitable — than ever. This Allis-Chalmers TEFC motor is especially well suited to this application because it has no enclosed cooling air passages. Since all cooling surfaces are exposed, the motor is easy to clean with cloth, air or vacuum cleaner. Even with the oily atmosphere of many machine shops, dirt wipes off easily.

Motor Control

Allis-Chalmers motor control is available for most designers' applications from size 0 up. Allis-Chalmers builds many types of squirrel cage and wound rotor motor control, dc motor control and variable speed control for many applications. Shown here is a full voltage across-the-line starter with reset button.

Nation Wide Service

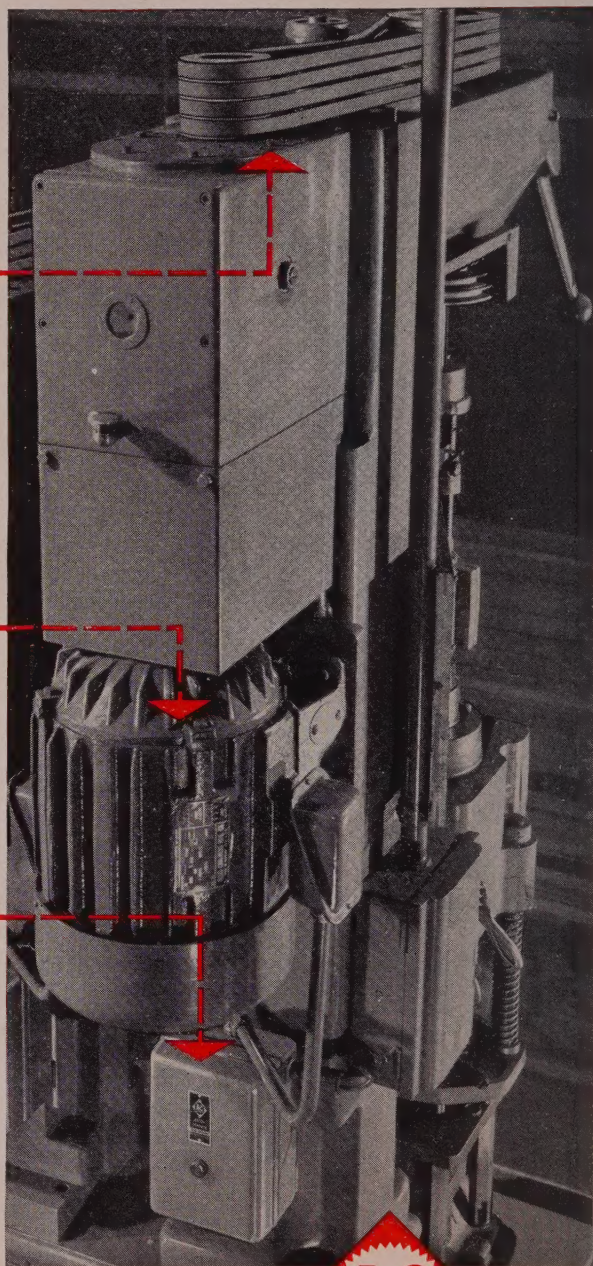
Nearly 100 Allis-Chalmers Certified Service Shops throughout the country provide factory-approved parts and service on Allis-Chalmers drive equipment. Complete information on special equipment also is provided.

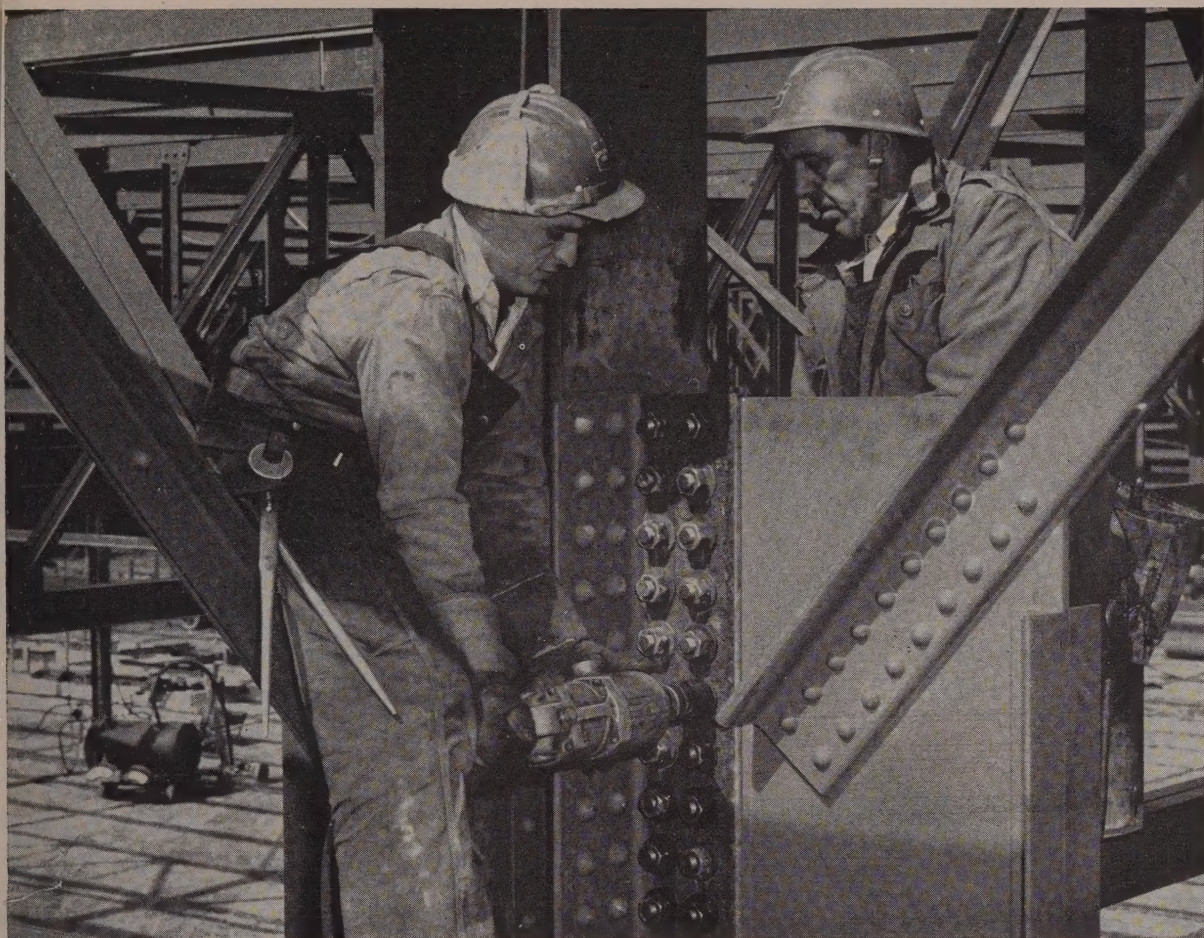
Get the help of your Allis-Chalmers District Office representative on your drive plans. Call him or write for Bulletins 51B6052, 20B6051, and 14B7733. Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4005

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

ALLIS-CHALMERS





Steel Erection Moves Fast with High-Strength Bolts

Erection proceeds at a smooth, rapid pace when Bethlehem High-Strength Bolts are used to join the structural members. These special heat-treated bolts can be installed quickly by a two-man team using a holding wrench and an impact wrench. The bolts are used with hexagonal nuts and hardened washers, and take the place of field-driven rivets.

In erecting steel with Bethlehem High-Strength Bolts, two hardened washers are used with each bolt, one under the head, the other under the nut. This permits the development of maximum clamping force

without deforming the connected material.

When bolts pass through beam- or channel-flanges having a sloping inner face, a bevel washer is required to provide a square seat for the bolt head or nut. Bethlehem furnishes these bevel washers in two types, for use with wide-flange beams and standard beams or channels.

Bethlehem High-Strength Bolts are manufactured at our fasteners plant at Lebanon, Pa. They are heat-treated by a process of quenching and tempering, to meet the requirements of ASTM Specification A325.

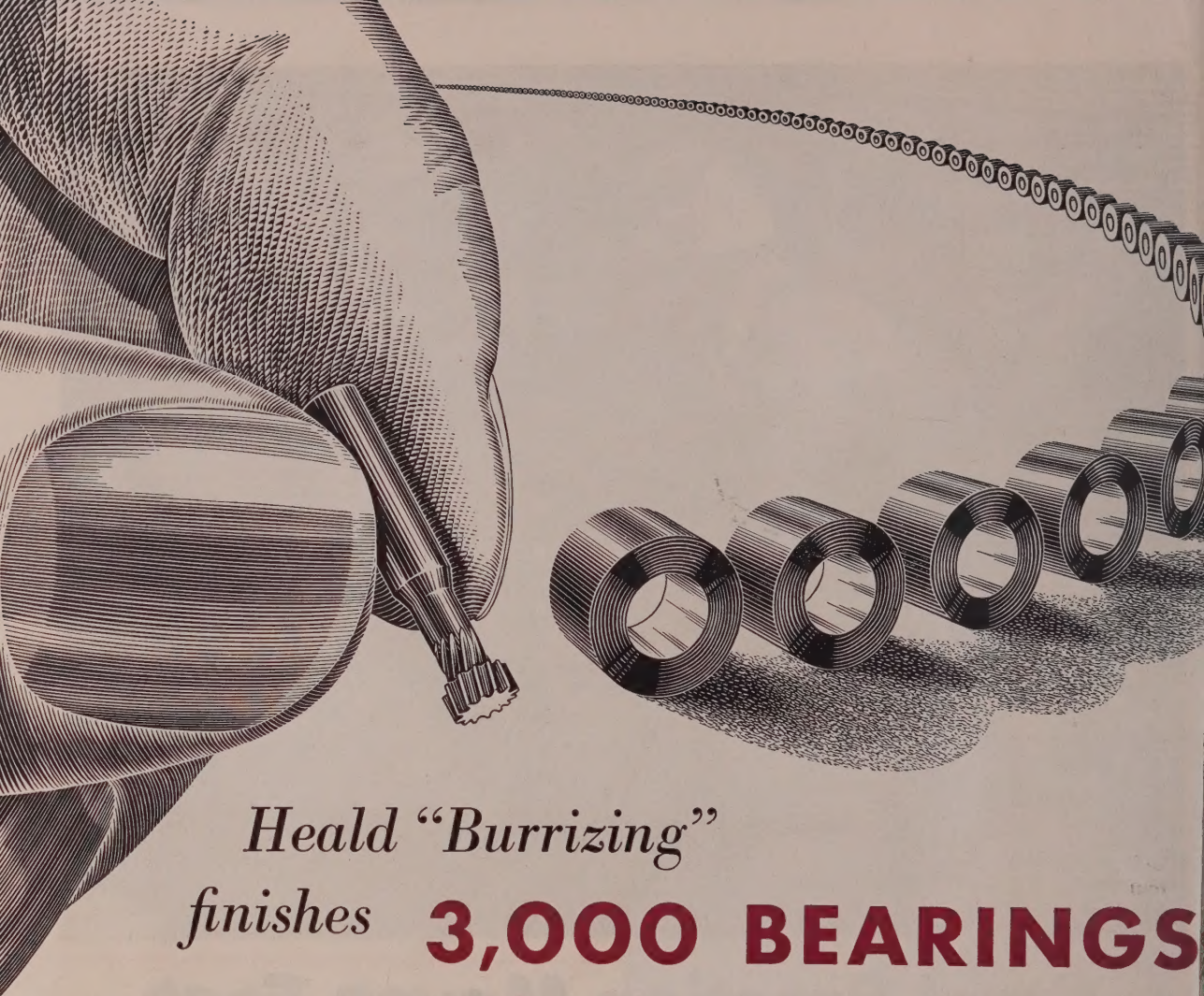
A request to the nearest Bethlehem office will bring you our interesting booklet, "High-Strength Bolting for Structural Joints."

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation. Export
Distributor: Bethlehem Steel Export Corporation



Bethlehem supplies every type of Fastener

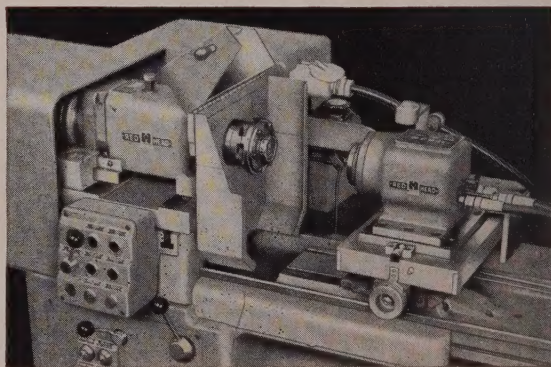


Heald "Burrizing"
finishes **3,000 BEARINGS**
... with only one part scrapped!

The use of a burr instead of a boring tool on a Heald Bore-Matic is somewhat unusual, but when it's practical, interesting things happen. Here's a case in point.

A model 121 Bore-Matic, equipped with a high-frequency grinding wheelhead, uses a $\frac{1}{8}$ " shank burr for precision finishing the I.D. of miniature bearing races. Size limits of .0002", .000050" for roundness and .0001" for concentricity are easily held. Three thousand parts have been finished in five, seven-hour shifts—with but a *single scrap part*! Burr is dressed intermittently by a diamond hone and customer reports that tool life lasts up to 5,000 pieces!

Remember—when it comes to precision finishing, it pays to come to Heald.



Internal and Rotary
Surface Grinding Machines
and Bore-Matics



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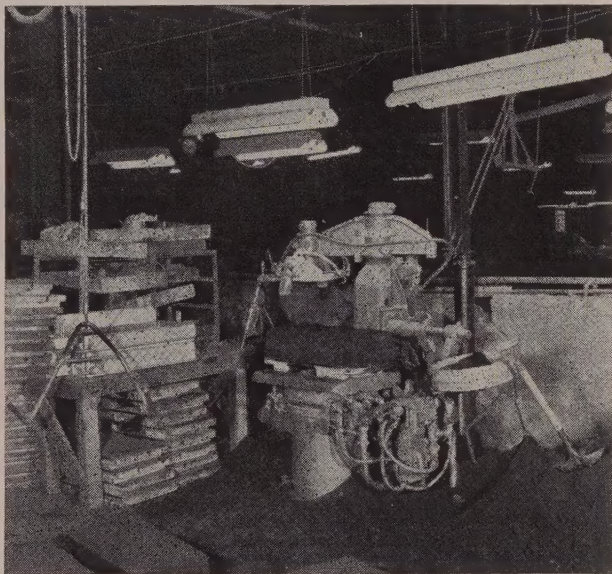
OSBORN

Osborn has been cutting foundry molding costs for 43 years!

HERE'S HOW

- **DIRECT FACTORY SALES** through experienced foundry-trained Osborn molding field specialists who *spend all their time* on foundry applications.
- **THOROUGH ENGINEERING** of your requirements by foundry engineers backed by 43 years' experience serving the industry.
- **PRECISION MANUFACTURE** of tomorrow's Foundry Molding Machines and Core Blowers in a modern plant using modern manufacturing method assures *fast accurate mold production*.
- **CONSTANT RESEARCH** that has pioneered the industry's major improvements in more efficient, lower cost molding and core blowing.

INVESTIGATE NOW. Have Osborn's representative check your requirements to see where production can be improved and costs cut. Call or write *The Osborn Manufacturing Company, Dept. FE-7, 5401 Hamilton Avenue, Cleveland 14, Ohio.*



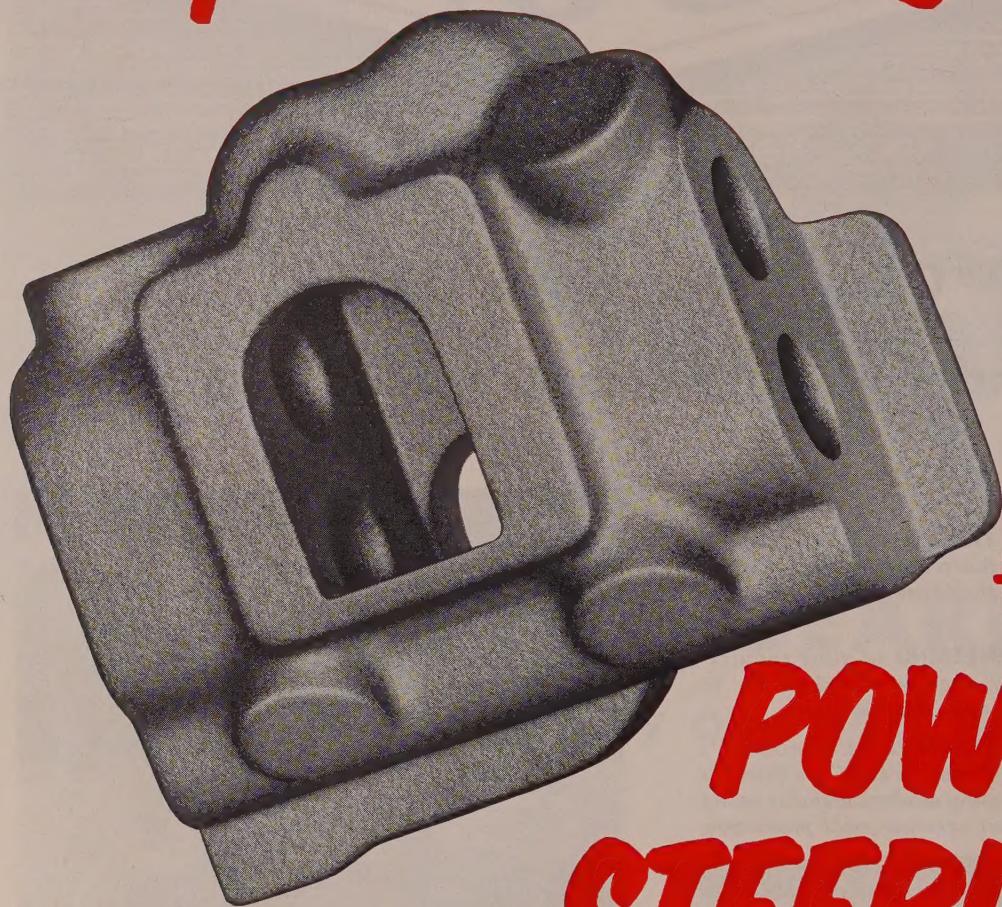
HERE'S PROOF. Production increased 75% at this foundry through Osborn's mechanical devices.

Serving the Foundry Industry for 43 Years

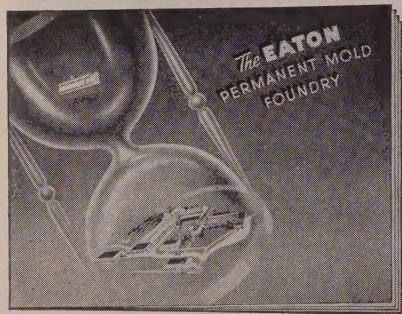
Osborn Molding Machines

MOLDING MACHINES . . . CORE BLOWERS . . . INDUSTRIAL BRUSHES

Eaton Permanent Mold Gray Iron Castings—



for
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STEERING**



Send for your free copy of the 32-page illustrated booklet: "The Eaton Permanent Mold Foundry." It tells the story of Permanent Mold Castings and takes you on a picture-tour of the Eaton Foundry at Vassar, Michigan.

EATON MANUFACTURING COMPANY

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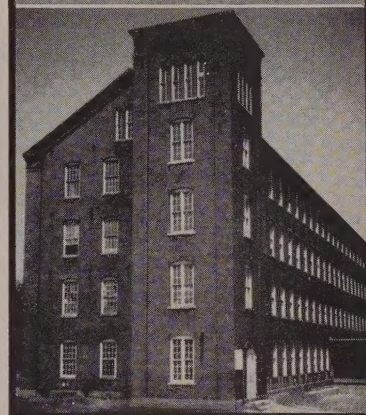
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You
Have? ?



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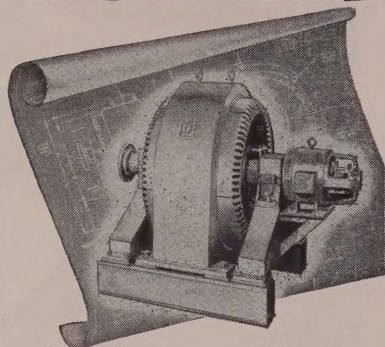
Regular PLA-TANK® Brand items include Tanks, Pipe, Duct Systems, Fume Hoods and Stacks—the pioneers and leaders in the field!

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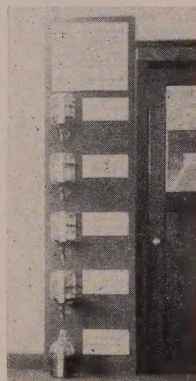
X-74

behind the scenes



What's a Bottle-Ometer?

Here you see a truly historic picture. It shows an intricate mechanism called a Bottle - Ometer. It's the only one in existence and it serves a unique and important function.



It sits alongside the door in STEEL's Master List Department and through a complex system of plug valves and tubes, records the daily flow of Census questionnaire forms through a five-station processing system.

When that top jug is finally empty and the bottom jug is full, there'll be a hot time in the Census Department that night 'cause that'll mean that current data on more than 13,000 metalworking companies will have been recorded since January 1, 1953.

The Bottle-Ometer is the brain child of the Promotion Department with a large assist from the Art and Building Maintenance Departments. It's inter-departmental cooperation like this that will get everyone exactly nowhere.

Incidentally, for those of you who are mechanism-minded, the Bottle-Ometer works on the principle that when a body is immersed in water, the phone usually rings. This gadget is definitely not patented.

Wants Relief from Relief!

Mr. Anonymous, the fellow that wrote most of the stuff that Shakespeare is given credit for, sent us this bit of verse which he asked us to pass on to you, our ardent readers.

We see it every morning
It happens every day
The double file of lovely girls
Meander on their way.
They march around the corner
Right by the flight of stairs
Where the powder room awaits
them
And they always go in pairs.
Perhaps the trip is long and
rough

Or the stairs are dark and lonely
But two by two they always go
To the room marked *Ladies Only*
The supervisor tears her hair
The boss is torn with grief
The day's production goes to hell
While the girls go on "Relief".
At three o'clock each afternoon
The trek begins once more
What goes on in that little room
That cannot wait 'til four?
The only answer I can find
That's fair to every man
Is to move the whole blamed office
Into the Ladies Can!

A Real Puzzler!

Here's one that should have you prolific puzzlers hanging by your logarithms.

A wise mother spider and her eight husky youngsters were perched on the wall at one end of a rectangular room. An enormous fly landed unnoticed on the opposite wall. If Euclid could have been summoned from his grave, he would have been able to show that both the hunters and the prey were in the vertical plane bisecting the two opposite walls, the spiders 80 inches above the center and the fly 80 inches below.

Suddenly, one of the young spiders shouted, "Mamma! Look! There's a fly! Let's catch him and eat him!"

"There are four ways to catch him. Which shall we take?"

"You have forgotten your Euclid, my darling," said Mamma. "There are eight ways to reach the fly. Each of you take a different path, without using any other means of conveyance than your God-given legs. Whoever reaches the fly first shall get the largest portion."

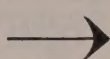
At the signal, the eight spiders shot out in eight different directions at the speed of 0.65 miles per hour. At the end of 625/11 seconds they simultaneously converged on the fly.

Now, all we ask of you Dear Reader, is that you give us the dimensions of the room.

Shradu

Wellman will build it

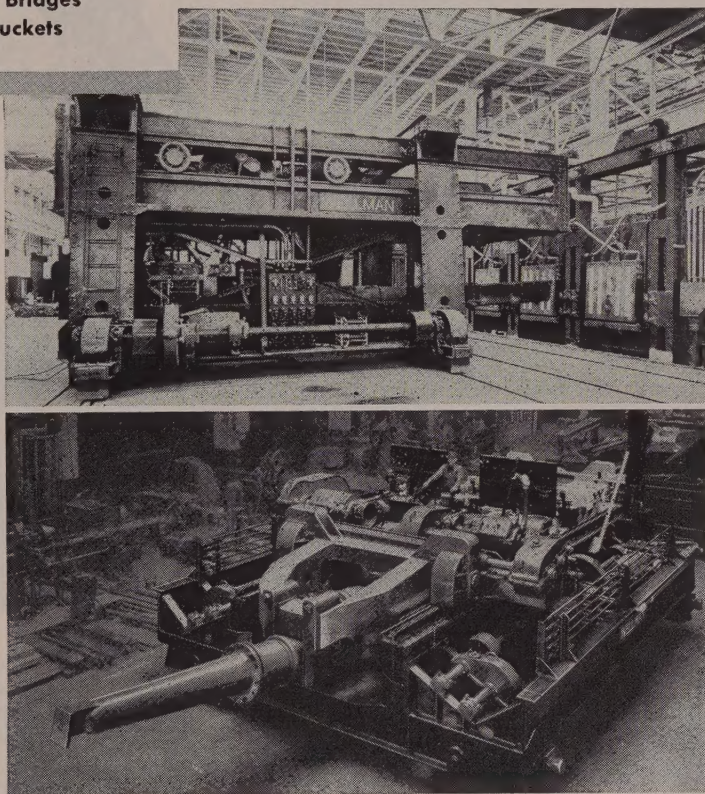
Special Cranes
Charging Machines
Ore Unloaders
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Car Dumpers
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Mine Hoists
Skip Hoists
Ore and Coal Bridges
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Wellman

charging machines

efficiently serve open-hearth furnaces



Above:
*Wellman High-Type,
Open-Hearth Charging
Machine.*

Below:
*Wellman Low-Type
Charging Machine.*

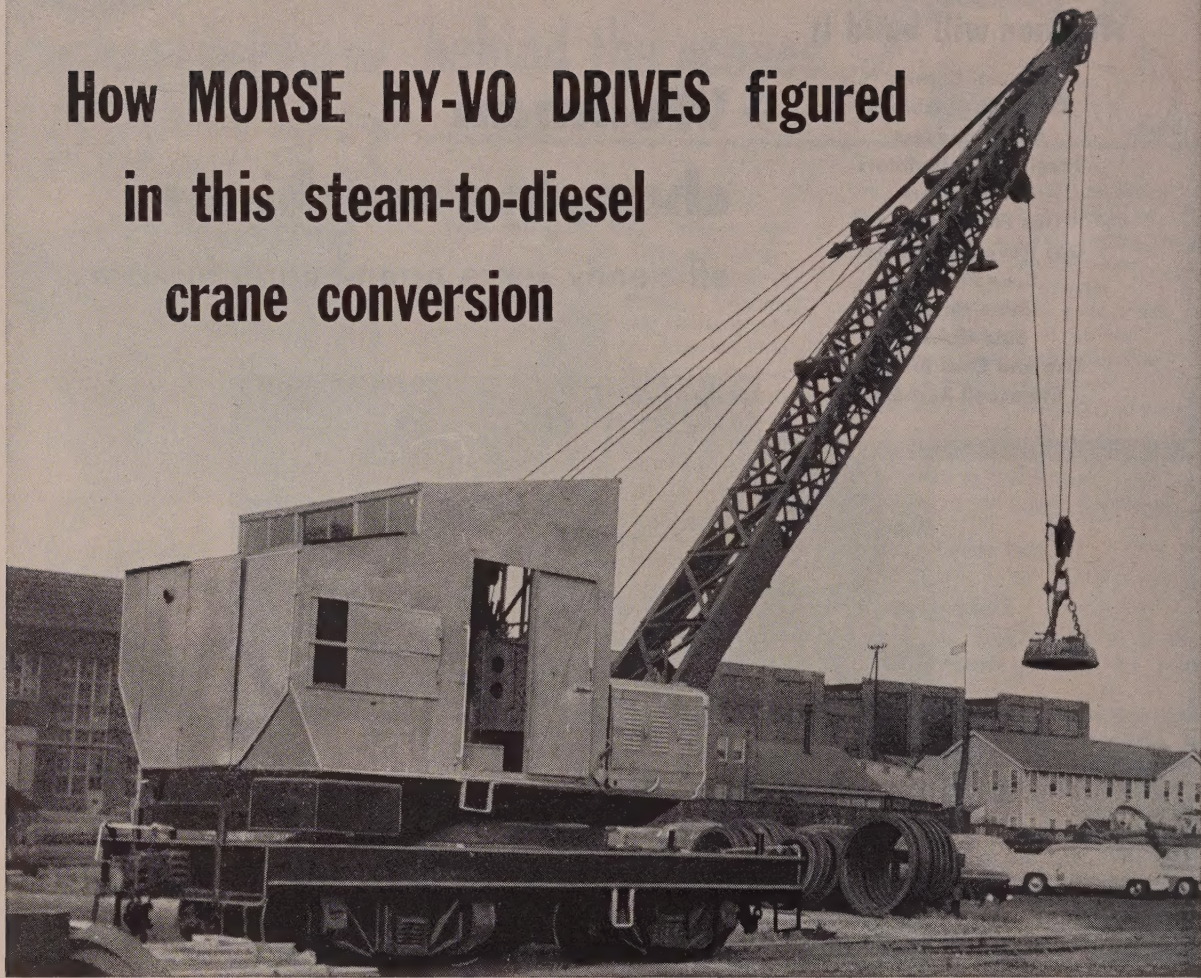
● Wellman Charging Machines for open-hearth furnaces are available in the high-type shown above and in low-type shown in inset. These machines are typical of all Wellman equipment. They are backed by more than a half-century of experience in designing and building for efficient performance. You can have utmost confidence in Wellman recommendations.

THE WELLMAN ENGINEERING COMPANY

7000 CENTRAL AVENUE

CLEVELAND 4, OHIO

How MORSE HY-VO DRIVES figured in this steam-to-diesel crane conversion



Inset shows encased Morse Hy-Vo Drives. Note narrowness of drives in relation to 165 hp. power-transmission requirements.

After thirty-four years as a steamer, this Browning locomotive crane owned by Edgewater Steel Company was converted to diesel power.

Its new power equipment: A Cummings 165 hp. engine with a torque converter drives a 1" x 4" Morse Hy-Vo Drive, connecting converter output shaft to jackshaft, second reduction is made with a 1" x 5" Morse Hy-Vo Drive.

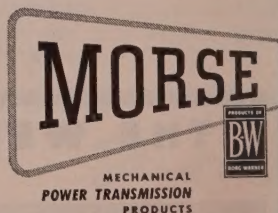
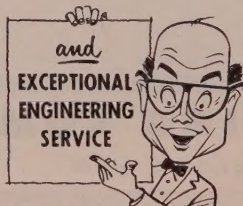
Results: Smoother, more positive control, more reserve power. Operating cost per year cut from \$11,232.00 to \$7,887.36, a savings of \$3,344.64.

Morse Hy-Vo is especially suited to steady or intermittent transmission of heavy loads in cramped space.

In fact, Hy-Vo can transmit up to 5000 hp., run at linear velocities of 6500 fpm. and speeds of 3600 rpm. At the same time, it gives up to one-third longer service life, reduces operating and maintenance costs as much as 50%; runs coolly, quietly, smoothly with less than 1% friction loss. In most instances, it does away with bulky outboard bearings.

With just these few facts in mind, *think* of the advantages in design and function opened to you by Morse Hy-Vo Drive. Write us for details on Hy-Vo in your applications, or let us send you Hy-Vo Catalog C72-51. Morse Chain Company, Dept. 505, 7601 Central Avenue, Detroit 10, Michigan.

M=PT
MORSE
means
POWER
TRANSMISSION



EASTON simplified production

and improved product with this

CINCINNATI

Press Brake

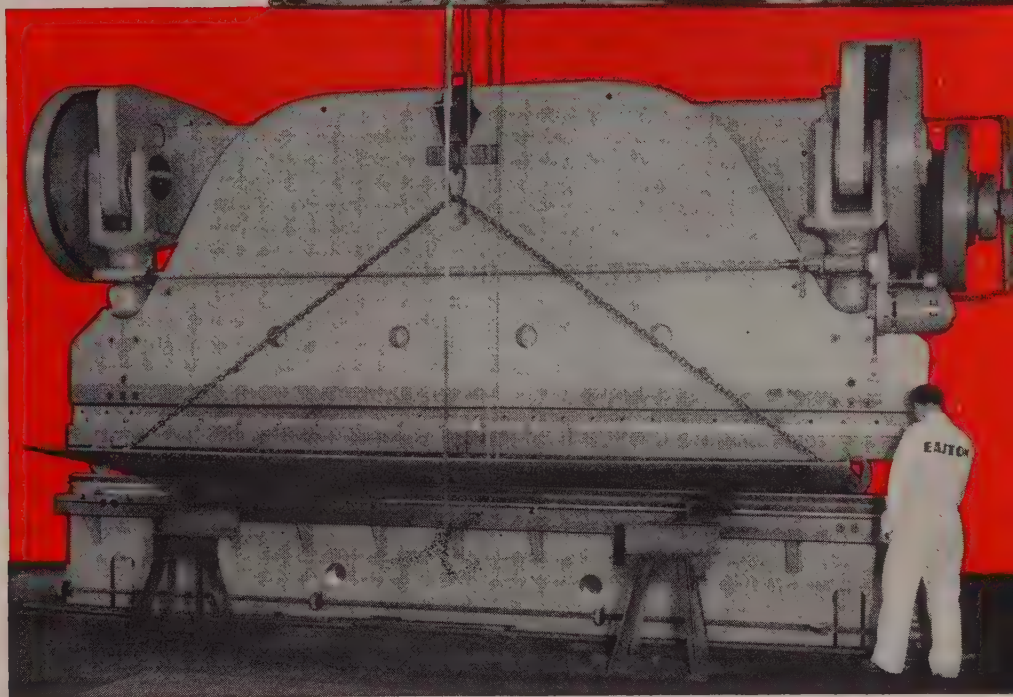


Illustration courtesy Easton Car & Construction Company, Easton, Pennsylvania.

Here a Cincinnati Press Brake is forming $\frac{1}{2}$ " plate for wide sections of off-highway trailers, at the Easton Car & Construction Company, makers of a large line of products for industrial transportation.

By using this Cincinnati Press Brake, some welding operations were eliminated, which improved the product, and reduced production costs at the same time.

The power, accuracy, and versatility of Cincinnati Press Brakes are reducing manufacturing costs where ever they are installed. If you form, or bend, you should investigate their possibilities.

Write for Press Brake Catalog B-4.



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if it's
Stainless Steel Plate
any size...any shape
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The segment of a tank head illustrated is typical. Made of 1" thick, Type 302 stainless steel, the head blank measures 210" in diameter and weighs approximately 9900 pounds. So accurately was this segment produced that no "truing up" of the abrasive cut straight edge was required prior to welding two segments together.

It is this unique ability in handling difficult work that makes customers enthusiastic about the G. O. Carlson, Inc. services. For your next job in stainless steel plate... let Carlson do it. Your inquiry will receive prompt attention.

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LETTERS

TO THE EDITORS

Hurrah for the Stainless Guide

CONGRATULATIONS!



Congratulations on your "Guide for Stainless Steel Buyers" (June 22). This is the most comprehensive book ever issued on the subject, and will certainly be invaluable help to any purchasing agent. Please again accept our congratulations and thanks.

W. H. Oliver
purchasing agent
Pusey & Jones Corp.
Wilmington, Dela.

We were pleased to receive the "Guide for Stainless Steel Buyers." This is a monumental piece of work and we can readily see the tremendous amount of collection and compiling it took to put it together.

As a buyer of various forms of stainless steel rolled products, we can use this guide. But as a manufacturer of many types of stainless steel castings and cast stainless centrifugal tubes we are at a loss to understand why cast stainless products were not included in it. Perhaps there is some good reason we do not understand.

T. H. Harvey
vice president
Ohio Steel Foundry Co.
Lima, O.

• Because we knew the compilation of the guide would be a monumental job, we did not attempt to cover castings but confined it to rolled and drawn products. Even so, nearly a year's work was required.—ED.

How To Heat Treat

I noticed with interest your article "Lightweight Strength" in the "Production and Engineering News" of May 25 (p. 115), dealing with the lightweight, high strength, 4340 steel obtained by a special heat treatment process developed by Lockheed Aircraft Corp. engineers. Could you give me more information on the heat treating process used to obtain the 260,000 to 280,000 psi described in your article?

C. F. Mittelstadt
chief engineer
Construction Equipment Department
Blaw-Knox Co.
Pittsburgh

• Primary consideration for optimum performance at the very high tensile levels of 260,000 to 300,000 psi is to hold the carbon content to a minimum and obtain properly tempered martensite. For further information, write to E. G. Wald, Lockheed Aircraft Corp., 2555 No. Hollywood Way, Burbank, Calif.—ED.

Incentives Have Pitfalls

Please send us 25 copies of your article "Watch Out for Incentive" Please turn to page 12

STEEL

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For complete information on greases prepared with Bentone *34, the non-soap, high-efficiency gelling agent, write to your nearest supplier listed at left, or to:

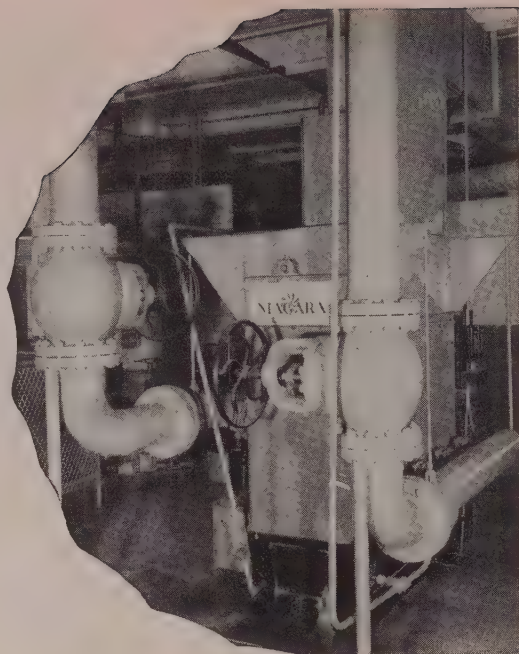
BENTONE*34
THE NON-SOAP GELLING AGENT



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to get
drier
or cooler
air or
gases . . .**



NIAGARA AERO AFTER COOLER cools a compressed gas, or air, below the temperature of the surrounding atmosphere, thus preventing the condensation of moisture in your lines. The gas will contain only half of the moisture left in it by conventional methods. Even drier gas can be produced if you require it.

In working with controlled atmospheres of inert gases to prevent undesired reactions, this dryness of the gas at low cost is a great advantage. The cost of the Niagara method is low because it uses evaporative cooling, saving 95% of the cost of cooling water (and its piping and pumping). This direct saving of cost pays for the Niagara cooler in less than two years.

If you use compressed air to operate tools or pneumatic equipment you save much in water and oil damage to tools and equipment, and in water damage to materials by using the Niagara Aero After Cooler.

Write for a bulletin, or ask nearest Niagara Field Engineer if you have a problem involving the industrial use of air.

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Over 35 Years' Service in Industrial Air Engineering

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New York 17, N. Y.

Experienced Field Engineers in Principal Cities of U. S. and Canada

LETTERS

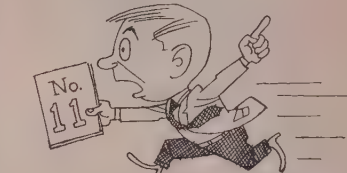
Concluded from page 10

"Snares" by M. K. Sheppard (June 15, p. 59).

A. J. Kiessling
factory manager
Huntington Division
Houdaille-Hershey Corp.
Huntington, W. Va.

• Sent.—ED.

Another Prefaber



Your article "Prefab Steel Buildings Turn Civilian" (June 22, p. 55) lists ten manufacturers of prefabricated steel buildings. We would appreciate being included as such a manufacturer in the future.

Jack G. Marshall
Steel-Bilt Construction Co.
Bridgeville, Pa.

Plastic Dies Fit Short Runs?

We're making ambulances and funeral cars on Pontiac chassis. Due to this being a short run production, tool steel die costs are prohibitive. After reading your article "Cradle of Automation" in the June 1 issue (p. 77), I am interested in getting particulars about plastic dies. Could you direct me to some sources of information?

Clyde Owens
plant manager
Guy Barnette & Co. Inc.
Memphis, Tenn.

• For the information you desire, write to D. G. Product Corp., 713 No. Rochester Ave., Clauson, Mich., and/or Ren-ite Plastics Inc., 3179 So. Cedar Rd., Lansing, Mich.—ED.

Pssst! It's There



Please explain to your Detroit editor that an overdrive-equipped Mercury will shift down to third gear at 60 mph (or any other speed) and then will instantly stop "loafing" as he complains of and start hustling, if you put the throttle on the floor to trip the down shift switch. (For Detroit Editor Floyd Lawrence's complete rundown on the Mercury see STEEL, May 11, p. 90.)

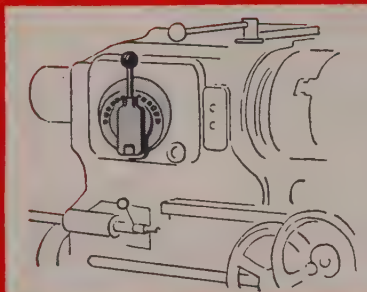
Overdrive cars are sold as gas savers, but those of us who buy them are looking for and getting performance in good weather using the down shift or underdrive, and control in bad weather with the overdrive locked out.

R. H. Murphy
vice-president & factory manager
Wiremold Co.
Hartford, Conn.

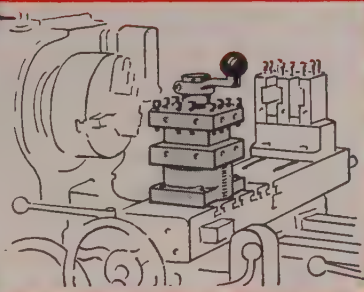
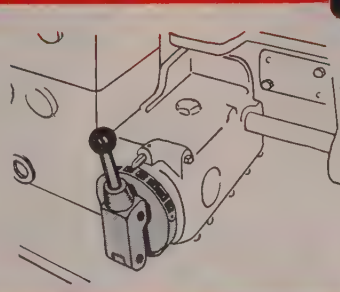
• Mr. Lawrence agrees. His opinion of the Mercury—an outstandingly fine car.—ED.

another reason why J&L turret lathes produce

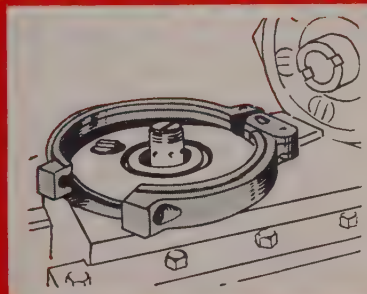
**MORE CHIPS PER TOOL
MORE PIECES PER HOUR
MORE PROFIT PER JOB**



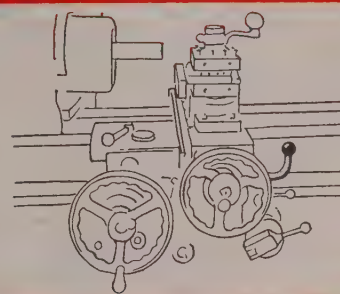
Single lever speed and feed selectors - preslector type



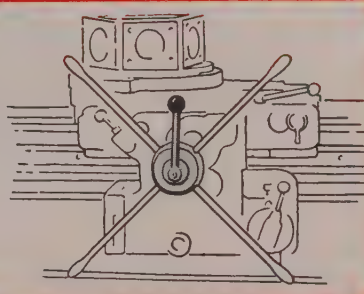
Quick-indexing - self-locking - square turret



Automatic clamping of hexagon turret.



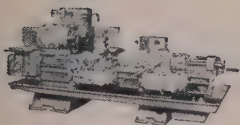
Power rapid traverse for cross slide.



Two-speed power traverse of saddle and power indexing of hexagon turret on all saddle type machines.

MORE EASE OF OPERATION!

J & L Turret Lathes are the easiest to operate, because controls are fewer, simpler and easier to reach. The operator can select the speed and feed for the next cut while machine is operating. Power rapid traverse for the cross slide, two-speed power traverse for the saddle and power indexing of the hexagon turret, also help take the strain off the operator and increase your production.



P.S. Power bar feeds and chucks, and power torque chuck wrenches are also available. Write to Dept. 710 for Catalog.

"World's most accurate and powerful turret lathes"

RAM TYPES: Bar, 1½" to 4½", Chuck, 10" to 12". SADDLE TYPES: Bar, 2½" to 5", Chuck, 12" to 18".

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- This may be getting down to the finer points in quality gear manufacturing. But it is your assurance that BRAD FOOTE'S engineers and technologists have at their disposal every scientific tool needed to make better gears for your every use. It's the reason why we can say "No one shares our responsibility."
- Next time you need gears, gear-motors, speed reducers, or transmissions, let us quote to your specifications; or tell us the job to be done and we'll design and engineer what you need. You pay no more at BRAD FOOTE, but we think you get more—lots more. We'd like to prove it to you.

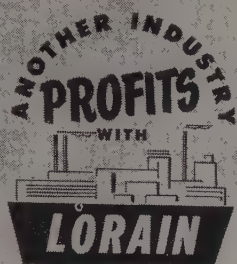
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MODERNIZES Material Handling

Bulky, heavy raw stock and finished components get a "lift" at the plant of this well-known machinery manufacturer . . . thanks to a Lorain "TL" Self-Propelled Crane which loads and unloads steel and fabricated parts, works two shifts, 16 hours per day, and brings new savings in time, manpower and dollars to one more American industry.



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Save on payroll investment. One man is in charge of every job from the operator's seat. Smaller crews mean smaller costs — and a Lorain Crane's efficiency never varies with the hour or the weather.

15 ATTACHMENTS



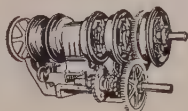
Buckets, magnets, slings, grabs — everything to handle any size, shape or type of material — from sand to steel. 15 or more attachments can be used with any Lorain Crane — up to 45-tons lifting capacity.

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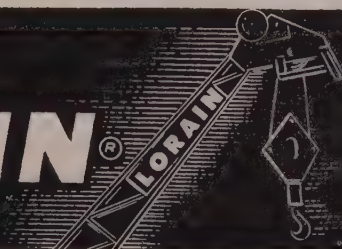
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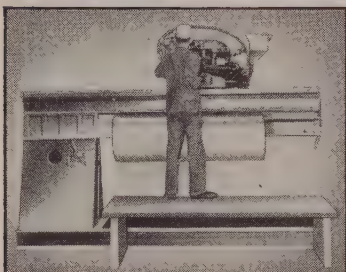
CRANES FOR INDUSTRY





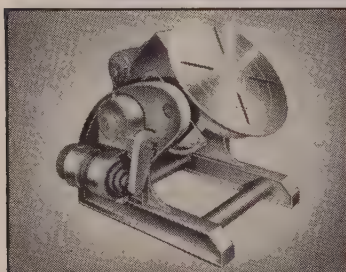
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- TURNING ROLLS
- AUTOMATIC WELDING
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- ★ In 6 models; capacities up to 9 ft. x 3/4 inch
- ★ In 2 styles for light or heavy shells
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- ★ Track for any automatic welding head



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New facts for your file on

U·S·S HIGH STRENGTH STEELS



U·S·S COR-TEN steel increases strength and durability of ironer parts . . . materially reduces die maintenance costs here

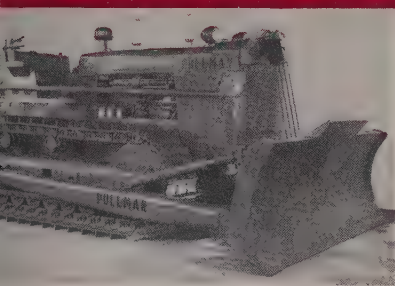
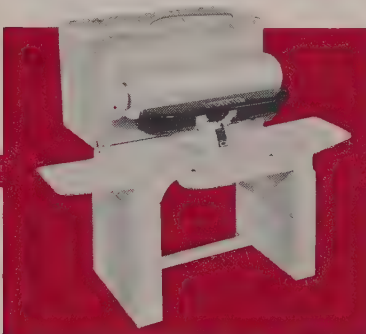
● Ironrite, Incorporated, Mt. Clemens, Michigan, manufacturers of the Ironrite Ironer, reports the following results since they switched from carbon steel to U·S·S COR-TEN steel for cabinet, wings and lapboard:

1. They obtain a sturdier, more durable, longer-wearing cabinet, because U·S·S COR-TEN steel has a yield point 50% higher than carbon steel and offers much greater resistance to dents.

2. Ironer parts have a smoother, more even finish, because COR-TEN steel offers much better adherence to baked enamel than carbon steel.

3. Their die maintenance costs are materially reduced. Dies wear longer, require less maintenance, because U·S·S COR-TEN steel is consistently uniform in quality and flows smoothly and evenly in the dies.

4. Lapboard and wings are stronger—yet weigh less. The greater strength of U·S·S COR-TEN steel makes it possible to use it in lighter gages than carbon steel. This reduces the amount of steel required, yet assures greater stiffness and durability.



U·S·S COR-TEN steel gives greater strength and corrosion resistance to earth-moving equipment

In this ruggedly-designed bulldozer, built by Pullman-Standard Car Manufacturing Company, moldboard face plates have greater strength and increased corrosion resistance because they are made with U·S·S COR-TEN steel. This superior high strength steel has been used for many years in all sorts of heavy-duty earth-moving and materials-handling equipment. Its use increases strength due to a 50% higher yield point, assures 4 to 6 times the atmospheric corrosion resistance of regular carbon steel, and provides greater resistance to impact and abrasion—all benefits that can be obtained at absolutely no increase in weight.

In 1933 the first heat of U·S·S High Strength Steels was shipped to a customer. Since then over 2 million tons of these "steels that do more"—U·S·S COR-TEN, U·S·S MANTEN and U·S·S TRI-TEN—have been produced. They have been used to make more than 170,000 freight cars lighter or stronger . . . to build buses lighter and safer . . . to reduce weight in trucks so they can haul more payload . . . to make mine equipment and earth-moving machinery stronger and tougher . . . to give the farmer sturdy and durable tractors and implements. L-P gas cylinders, water heaters, and a multitude of other products last longer, weigh less—making them easier to handle—and cost less to ship when made with U·S·S High Strength Steels. If you'd like to add their money-saving advantages to your product, write us. United States Steel Corporation, Room 2813-E, 525 William Penn Place, Pittsburgh 30, Pennsylvania.



Rubber-curing chamber is lined with U·S·S COR-TEN steel to provide resistance to deterioration

Foamex cushions at Firestone Industrial Products Company's, Fall River, Massachusetts plant, are processed in this curing chamber, 340 feet long, 10 feet wide and 6 feet high. When in operation, steam at atmospheric pressure fills the chamber—constant wetting and drying induces corrosive action that deteriorates ordinary steel construction. To overcome this, the manufacturer, Mechanical Handling Systems, Inc., Detroit, Mich., lined the chamber with U·S·S COR-TEN steel, which has 4 to 6 times the resistance to atmospheric corrosion of plain steel. User is reported highly pleased with results.



UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
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UNITED STATES STEEL

"Our forgings

—says John Dobos,



UNITED STATES STEEL

are tested with diamonds"

U.S. Steel Inspector

THOUGH it's a fairly common instrument, visitors to our Homestead Forgings Division are always fascinated by the scleroscope.

It consists of a tup with a diamond point enclosed in a glass tube which falls from a predetermined height. The tup is dropped on the surface of a forging, and the height of the *rebound* is a measure of the hardness of the steel. John Dobos, a U. S. Steel Inspector for 13 years, is pictured using one to test the surface hardness of a back-up roll sleeve used in a continuous cold mill.

Useful as it is, the scleroscope is only a part of our test equipment. Forgings are also tested with modern magnetic particle, ultrasonic and boroscopic equipment. Our well-equipped laboratories determine tensile properties and examine microscopic and macroscopic samples for cleanliness, structure and soundness. We even have a furnace built over a lathe to check dimensional stability of certain forgings at their actual operating temperature.

The reason for all this? Customers' requirements become more stringent every year. So we are constantly buying new inspection equipment, setting up improved testing procedures and training our men to do an even better inspection job.

Most important, of course, are the men. When you buy U·S·S Quality Forgings, men like John Dobos do the work. They've got the long years of experience, the equipment and the firm determination to give you the finest forgings that money can buy.

For more information, or for our 32-page booklet on U·S·S Quality Forgings, write to United States Steel, Room 2813-E, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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Quality
FORGINGS

heavy machinery
parts—carbon,
alloy, stainless

electrical and
water wheel shafts

hammer bases
and columns

marine forgings

New facts for your file about

U·S·S STAINLESS

Stainless Steel tubes take the place of refractories in furnace recuperators

Result is elimination of leakage, increased production and savings in fuel

● Taking over a job once performed almost exclusively by other materials, Stainless Steel is giving outstanding performance in recuperators made by Hazen Engineering Company, Pittsburgh, Pa. Hazen Recuperators—used with soaking pits and slab and billet heating furnaces—are all-metal units.

Various grades of Stainless Steel are used in Hazen Recuperator tubes. These tubes are often subjected to flue gas exceeding 2000°F. at the hot end of the recuperator.

Use of Stainless Steel offers many

advantages in this application. They include:

1. Elimination of leakage because tubes are firmly secured at the top and free to expand and contract.

2. Reduction in start-up time of the recuperator because of rapid heat transfer through metal.

3. Flue gas deposits can be cleaned easily with no need for replacement of the entire unit.

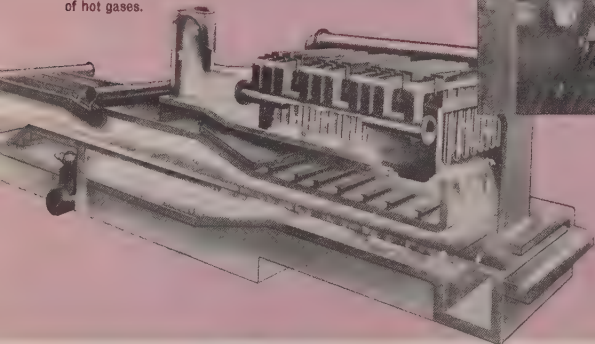
4. Furnace efficiency remains high because individual tubes can be replaced quickly and easily from outside the furnace, eliminating necessity of cooling entire unit with accompanying lost time.

5. Increased furnace production due to the above factors.

6. Fuel savings result from retention of a high percentage of the heat value of the waste flue gases.

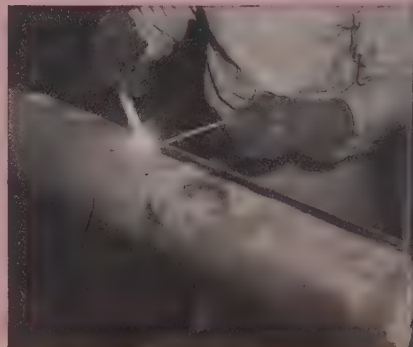
Nearly 100 of these Stainless Steel Hazen Recuperators have been installed to date. The oldest installation has been in service nine years.

Cutaway drawing of a Hazen Recuperator showing the Stainless Steel tubes and how they are exposed to the flow of hot gases.



Forming Stainless Steel sheet on a press brake for use in the Hazen Recuperator.

Helarc welding of Stainless Steel for Hazen Recuperator.



U·S·S

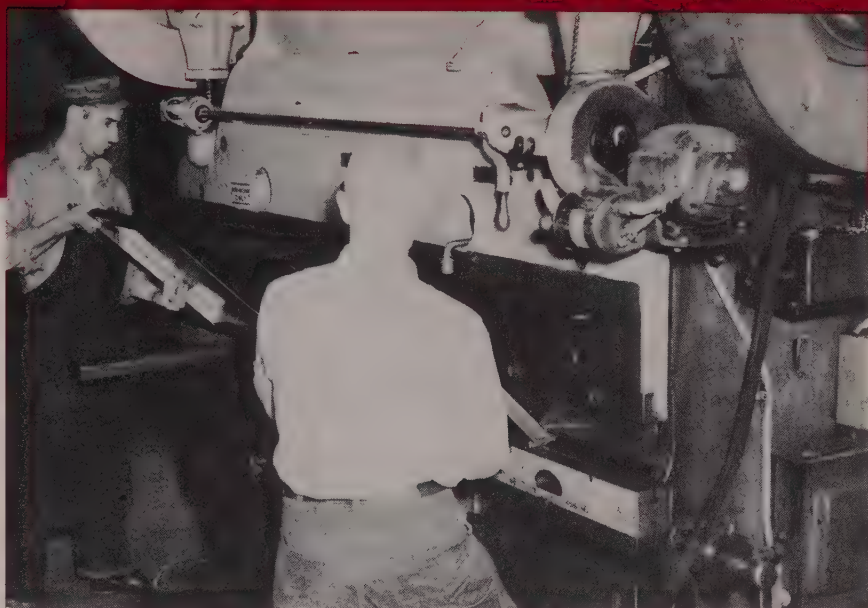
U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

TEEL



Sink tops are formed from Type 430 Stainless Steel in a press brake at Geneva Modern Kitchens.



Major producer of kitchen sinks now uses Type 430 Stainless Steel

● When nickel-bearing grades of Stainless Steel were restricted in their use, Geneva Modern Kitchens, Geneva, Ill., experienced no difficulty whatever in switching production to straight-chromium Stainless Steel. Long before restrictions went into effect, Geneva had examined

the possibilities of straight-chromium Stainless with good results.

Fabrication involves these operations. Type 430 Stainless sheets, 18 gage, are polished and coated with a protective plastic. Sheets are sheared and notched and the ends and sides are formed on a press brake.

The sheets are then blanked and bowl holes formed. The splash back is turned up on a press brake and drain grooves are formed. Bowls drawn from Type 430 Stainless Steel are electrically welded to the bowl holes, and welded areas and bowls are ground.



Bowls, top and sides of this attractive, durable kitchen sink are Type 430 Stainless Steel. The sink was manufactured by Geneva Modern Kitchens, Geneva, Ill.

Some hints on welding straight-chromium Stainless Steels

Most of the common commercial methods of welding can and are being applied successfully in the fabrication of straight-chromium grades of Stainless Steel. Methods being used include torch, arc, spot and resistance welding.

Welding temperatures should be kept as low as possible, since straight-chromium grades have a tendency toward grain growth which heat-treating may not correct. It has been found that in heavy sections numerous small beads followed by annealing often give the best results.

Tendency toward warping and movement in welding is minimized by the low coefficient of expansion of Type 430 straight-chromium Stainless.

Wherever feasible, it is recommended that welding rods be of nickel-bearing grades of Stainless Steel. But where color match is important, welding rods of a straight-chromium grade can be used successfully, especially when the weld is to be annealed.

Our representatives can help you with problems you may encounter in using U·S·S 17 (Type 430) and other straight-chromium grades of Stainless Steel.

New facts for your file on

U-S-S CARILLOY STEELS

Every B-36 lands on U-S-S Carilloy steel

● When 179 tons of B-36 thump down on a landing strip, tremendous stresses are built up in the structural parts of the landing gear. Only the highest quality in steel can handle this tough job, which is one of the most exacting in the aircraft industry.

All of the rugged main columns for these landing gears are made from U-S-S CARILLOY electric-furnace aircraft quality ingots. This high quality alloy steel provides the great strength and shock resistance demanded in the performance of the finished part. The main columns for these landing gears are forged. The original ingot, as shipped to the forger, weighs approximately 37,500 lbs. From it are produced two columns, each weighing about 1200 lbs. In other words, approximately 93% of the steel has been removed—with a mere 7% of the original ingot left to do this tremendous job. Obviously, this steel must be of the very best quality.

The same care and skill go into every ton of CARILLOY steel that *you* buy, whether it's a giant alloy ingot or a few tons of special steel. Our experienced metallurgists keep a close check on *every* heat of steel to make sure it has the strength, hardness, toughness and machinability that's needed.

If you have a special steel problem, let us know. We'll be glad to help you with it.



No ordinary steel could withstand the huge shock loads imposed on the main landing gears of Convair's giant Air Force B-36 Bomber. The plane has a maximum gross weight of 358,000 lbs., with still higher landing shock loads. But U-S-S Carilloy steel has more than enough impact strength to hold up under this severe punishment.

U-S-S Carilloy electric-furnace aircraft quality steel meets every requirement for these vital parts. The precision machining and expert heat treatment they get at Cleveland Pneumatic Tool Company complete the job.



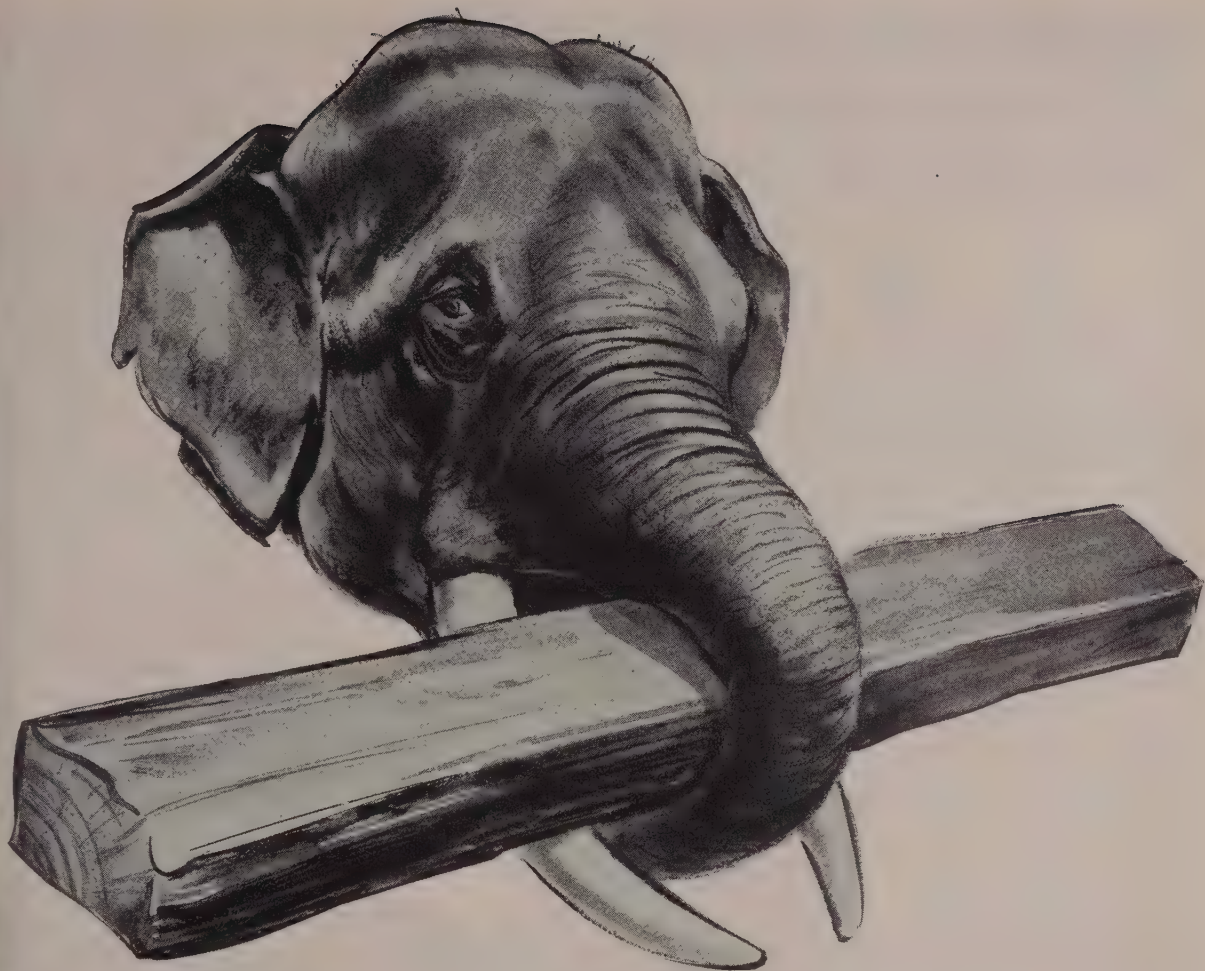
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TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, EAST-TO-COAST

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL



BRUTE STRENGTH For Handling **THANKS TO BATTERY POWER!**

Battery power gives industrial trucks tremendous capacity for continuous work. Enabling trucks to operate full shift without downtime, it is the most economical, most dependable materials handling power you can buy. Battery-powered trucks are fool-proof, handle, lift and maneuver faster, are easier on the operator, run silent and fume-free, have in-service records that can't be approached! You can beat the high cost of moving materials with Gould Battery power.



Specify
THE GOULD "THIRTY"—
America's Finest
Industrial Truck Battery

GOULD INDUSTRIAL BATTERIES

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

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... **another use for the versatile,
time and money saving**

NAZEL

ELECTRO-PNEUMATIC HAMMER

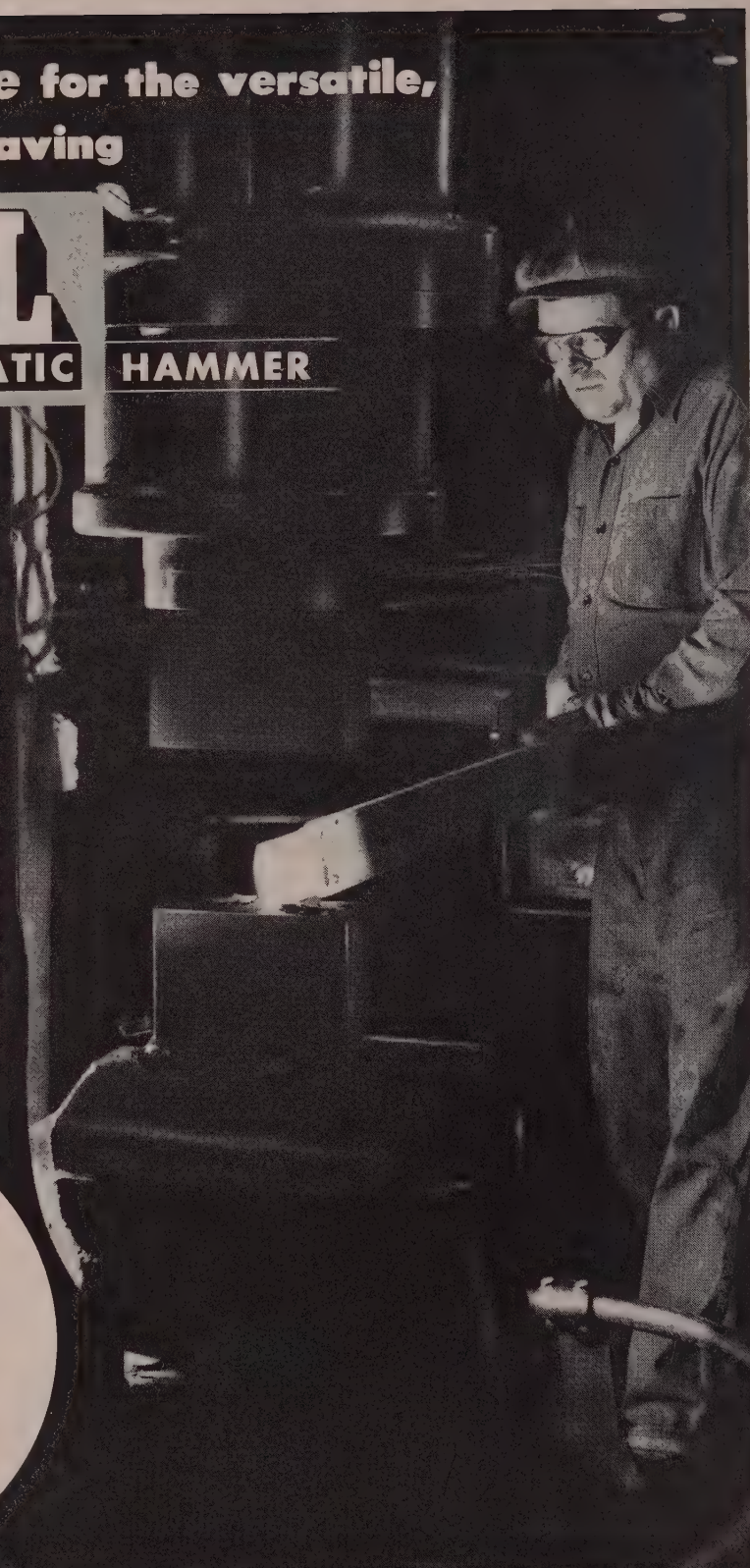
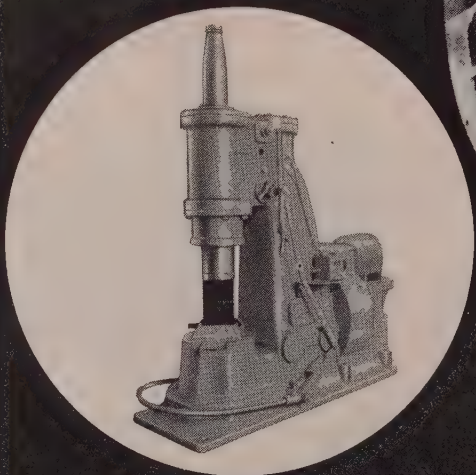
GOAL: to step up production in the cold-drawing shop of a large, well known steel company.

PROBLEM: to speedily and efficiently "point" or "shank" the ends of rolled bars to be cold-drawn ... so that they could be readily grasped and held by the draw bench dolly.

SOLUTION: after careful study, an all-in-one NAZEL Electro-Pneumatic Hammer was selected as the ideal Hammer to perform the actual "shanking" operation ... because the NAZEL is highly efficient, convenient, using power only when forging and, is always ready in an instant.

OPERATION: a storage rack and furnace to right of hammer operator holds the long bars so that their ends are heated. A gravity incline permits bar to be drawn from furnace and slid to operating position on roller table. End is then forged to a shank or point, smaller than the die, which can be grasped by the draw bench dolly. The bar is rolled back on the roller table and slid on to another storage rack for removal to the next operation, cold-drawing.

Write, today, for your copy of the NAZEL HAMMER Catalog.



1836

LOBDELL UNITED COMPANY

WILMINGTON 99, DELAWARE

A SUBSIDIARY OF UNITED ENGINEERING AND FOUNDRY COMPANY

1953

Stop Rejects and Costly Base Metal Losses

use the

DU PONT SODIUM HYDRIDE DESCALING PROCESS

High dimensional accuracy
for work of all shapes and sizes!

There is *never* any danger of etching, pitting or loss of gauge when stock in process or finished articles are descaled in a Du Pont Sodium Hydride Bath. Descaling action stops the *instant* scale has been removed. This eliminates base metal losses and stops rejects . . . permits you to work to closer tolerances throughout all manufacturing steps.

Just one fast treatment is all that's needed for complete descaling of all metals not affected by fused caustic at 700°-750°F. This speed makes the Du Pont process ideal for production line set-ups, whether manual, conveyORIZED or continuous. And since all scale breaking operations are eliminated, you get important savings in time, labor costs and floor space.

Get all the facts from Du Pont—pioneer of sodium hydride descaling. Specialists will be glad to provide technical assistance for your metal cleaning program. Just get in touch with our nearest district office, or send in the coupon below.

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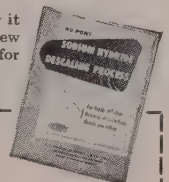
*BARADA & PAGE, INC.

DU PONT Sodium hydride process for positive descaling



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

More detailed information about the process—how it works, what it can do for you—can be found in our new book. Call our nearest office or use the coupon below for your copy.



E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department S-76
Wilmington 98, Delaware

Please send me more information about the Du Pont Sodium Hydride Descaling Process: advantages, applications, equipment used. I am interested in descaling_____

Name_____Position_____

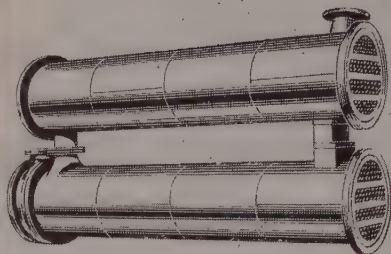
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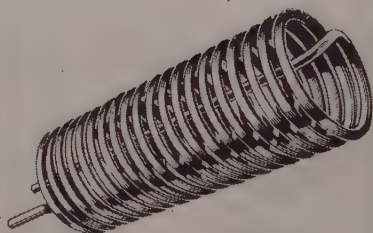
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HAYNES Alloy Tubing

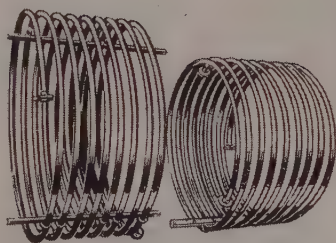
Trade-Mark



Heat Exchangers



Fluid Lines



Coils

FOR SEVERE SERVICE CONDITIONS

Tubing made of HAYNES alloys gives long, uninterrupted service under severe conditions of heat, corrosion, or oxidation. The tubing can be obtained in four different alloys, each having a particular combination of unusual properties to combat certain service conditions. The chart below shows some of the media these alloys resist. Typical applications are heat exchangers, coils, calandrias, and fluid lines.

All four HAYNES alloys are supplied in welded or welded and cold drawn tubing. Most common welding methods—including metallic-arc and HELIARC welding—can be used in fabricating the tubing installations. If you wish further information about HAYNES alloy tubing, contact the nearest Haynes Stellite Company district office.

USE TUBING OF

FOR RESISTANCE TO

HASTELLOY Alloy B
(nickel-molybdenum-iron)

Hydrochloric acid, wet hydrogen chloride gas, sulphuric acid, phosphoric acid, organic acids, high temperatures.

HASTELLOY Alloy C
(nickel-molybdenum-chromium-iron)

Nitric acid, free chlorine, acid salts, hydrochloric acid, sulphuric acid, phosphoric acid, organic acids, sulphurous acid, high temperatures.

MULTIMET Alloy
(cobalt-chromium-nickel-iron)

Oxidation, high temperatures.

HAYNES Alloy No. 25
(cobalt-chromium-tungsten-nickel)

Oxidation, high temperatures, carburization, wet chlorine, nitric acid.

HAYNES

TRADE-MARK

alloys

Haynes Stellite Company

A Division of
Union Carbide and Carbon Corporation

UCC

General Offices and Works, Kokomo, Indiana

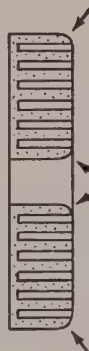
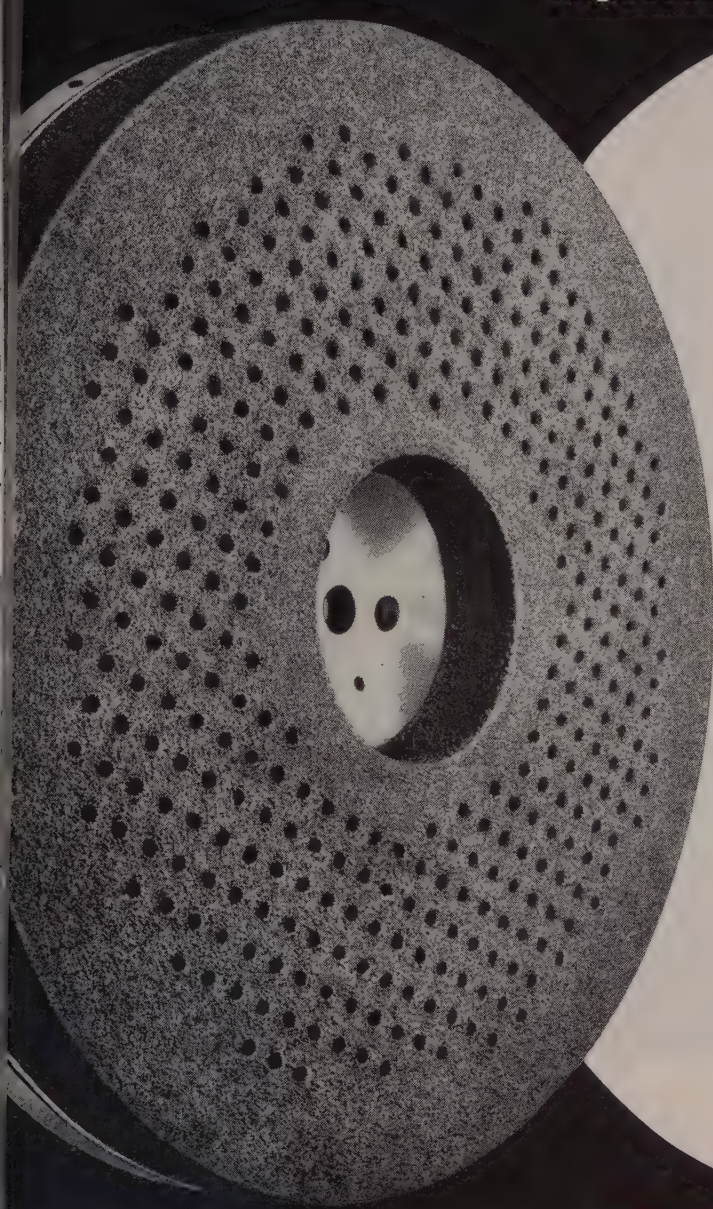
Sales Offices

Chicago—Cleveland—Detroit—Houston
Los Angeles—New York—San Francisco—Tulsa

"Haynes," "Hastelloy," "Heliarc," and "Multimet" are trade-marks of Union Carbide and Carbon Corporation.

Gardner Abrasive Engineering

**How a change in design of disc surface
improved accuracy and increased output**



THE PROBLEM

Grinding the parallel ends of valve and clutch springs called for high accuracy and fast stock removal. An overall deep corrugated disc gave the desired speed of stock removal. However, the inner and outer edges wore down to cause periodic inaccuracies in work.



THE SOLUTION

Gardner engineers recommended a disc in which the deep corrugations were removed from the surfaces adjacent to the periphery and center hole. Results: A cutting face that did not round off and break down at the edges. Production increased because there were fewer rejects and less time needed for dressing.

Gardner Abrasive Engineering offers experience derived from making both the grinding machines and the abrasive discs. It considers machine performance first and then evaluates how grade and grain of abrasive affect grinding results. If standard abrasive discs won't do the job, discs are made just for you.

For help with your grinding problems, consult the Gardner Abrasive Engineer.

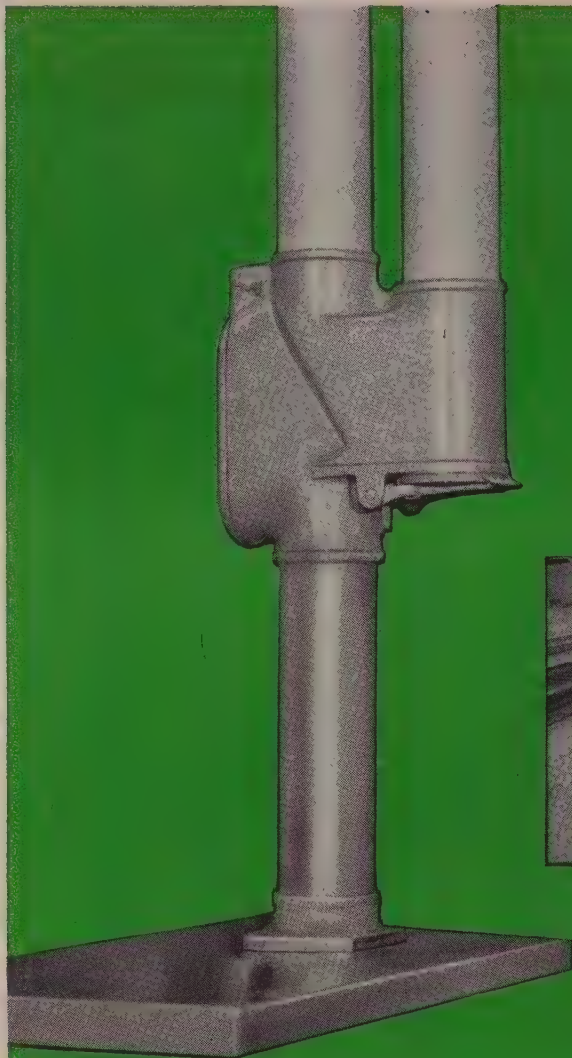
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GARDNER MACHINE COMPANY
420 Gardner St., Beloit, Wisconsin, U.S.A.

GARDNER

*abrasive
discs*

WHY



CASE HISTORY No. 73—PNEUMATIC TUBE SYSTEMS

Aluminum proves the perfect metal for pneumatic tube dispatching systems, both in intricate store or office installations and lengthy outside applications. The light weight of aluminum, one-third that of metals previously used, means initial savings in shipping, minimum structural support and reduced labor costs for installation.

Furthermore, aluminum's resistance to rust and corrosion pays big dividends three ways. First, much of the tubing is installed inside building walls, under floors or underground where it is not readily accessible so aluminum eliminates major maintenance and replacement expense. Even for outside installations the elimination of maintenance means big savings.

Second, the interior of aluminum tubing remains bright and smooth . . . hence, more savings because no lubricant is needed. And, thirdly, aluminum is naturally protected against weathering so it requires no painting or repainting . . . another important savings!

This proof of performance with aluminum, as demonstrated by the progressive thinking of Kelly Systems, Chicago, Illinois, may suggest a similar conversion from other material to aluminum in your products. Lower initial and installation costs, reduced maintenance, attractive appearance, ease of fabrication, and longer life all add up to lower overall costs per year for aluminum users . . . provide important sales features for manufacturers.

LET ALUMINUM SERVE YOU, TOO

ALUMINUM?

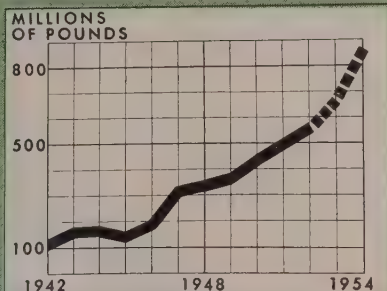
**...because it has an ideal combination
of advantages found in no other metal!**

More aluminum is being specified in designs today because aluminum improves products and increases sales. Let Reynolds Aluminum

Specialists help your designers and engineers get maximum benefits from this modern metal. Remember, only aluminum gives you . . .

- ★ **Lightweight with great strength**
- ★ **Consistently low cost**
no more now than before World War II
- ★ **Natural resistance to rust and corrosion**
- ★ **Attractive appearance**
- ★ **Ease of fabrication by modern methods**

STILL MORE ALUMINUM COMING



The expanding primary aluminum production of Reynolds Metals Company . . . a historic chapter in the company's 34 years of continuing growth. And primary supplies of aluminum ore will be ample for generations.

To the man in charge of production

Acquaint yourself with accepted techniques for fabricating aluminum. Write on your letterhead for aluminum fabrication books listed at right. On special problems consult with Reynolds staff of aluminum specialists. Reynolds Metals Company, 2520 South Third Street, Louisville 1, Kentucky.

Yours For The Asking . . . REYNOLDS TECHNICAL BOOKS

(please request on business letterhead)

Aluminum Data Book
(Aluminum Alloys and Mill Products)
Aluminum Structural Design
Aluminum Powders and Pastes
Designing with Aluminum Extrusions
Fastening Methods for Aluminum
Finishes for Aluminum
Forming Aluminum
Heat Treating Aluminum Alloys
Machining Aluminum Alloys
Welding Aluminum
Metals Weight Slide Rule

Complete index of all technical literature and films on aluminum design and fabrication also available.

"Mister Peepers" returns September 13th on NBC-TV.

REYNOLDS



ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND

They

**ARE
ALWAYS READY!**



Bunting Standard Stock Bearings

Completely machined and finished—ready for assembly—Bunting Standard Stock Bearings can be immediately installed in most machine tools and industrial machinery. Unusual requirements are quickly and economically met by slight additional finishing. Your local Bunting distributor stands ready to serve you at all times from his large stocks.



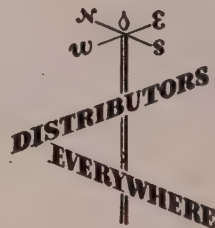
The Bunting Distributor

Your Bunting Distributor is an industrial distributor or a specialist in certain industrial items. You will find him listed in the classified section of your telephone book—most likely under the heading Bars, bronze or Bearings, bronze. If he is the leading distributor, he almost certainly is the Bunting Distributor. He carries in stock, for your money saving convenience, completely machined and finished Bunting Standard Stock Industrial Bearings, Electric Motor Bearings and Precision Bronze Bars in a complete range of sizes meeting all your usual production and maintenance needs. Ask him for catalog.

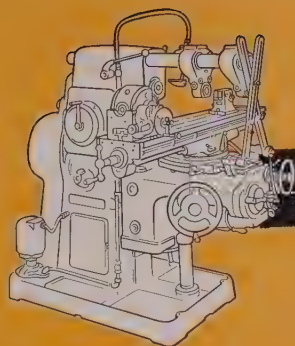


Bunting®

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THE BUNTING BRASS & BRONZE COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

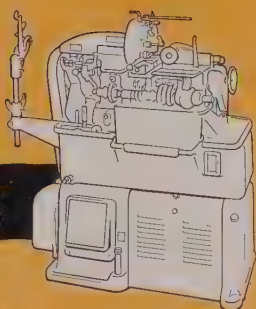


MILLING
MACHINES



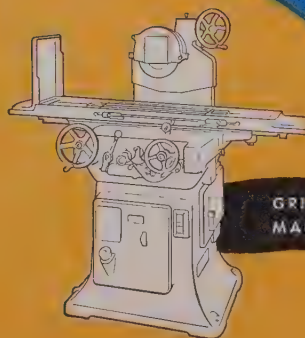
Productioneered

*to meet unusual demands today
and in the BIG years ahead*



SCREW
MACHINES

Today, tomorrow, and in the years ahead,
your metalworking machines must carry a greater load
than ever before . . . and they may be required to
accommodate both civilian and defense production
demands. That's why it will pay you to investigate the
superior qualities of adaptable Brown & Sharpe
Milling, Grinding, and Screw Machines. Each of these
machines is soundly engineered to do a broad
class of work more efficiently — 'Productioneered'
to give you maximum productivity, precision,
and profit on every job.

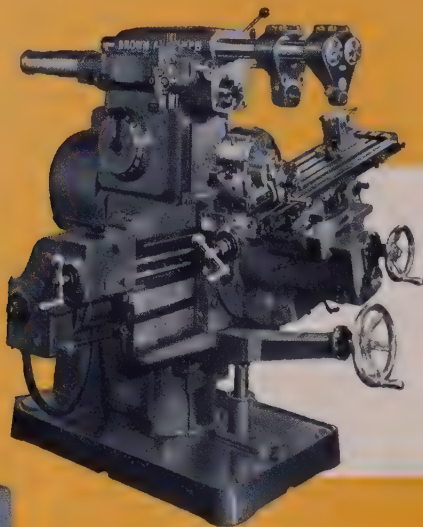


GRINDING
MACHINES

Brown & Sharpe

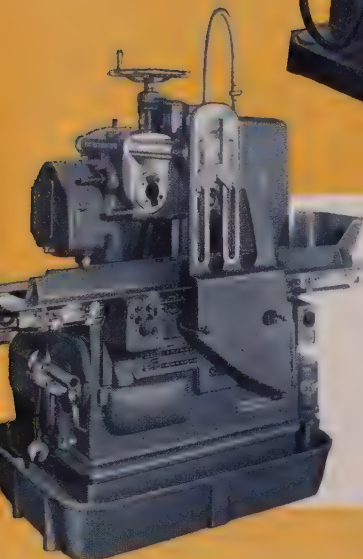


***Productioneered** for High Precision, Low-Cost **Milling** on every job*



OMNIVERSAL MILLING MACHINE

This machine is the toolmaker's dream-come-true. It's the "last word" in milling versatility for toolrooms and experimental departments. Permits milling, drilling, boring, or reaming at many angles — and in a number of planes — without relocating work in holding devices . . . saves hours of expensive set-up time.



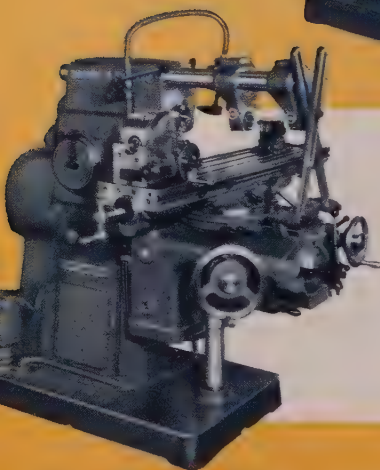
MANUFACTURING TYPE MILLING MACHINES

The No. 000 Plain Machine provides economical production milling of small parts, and the No. 12 Plain Machines (illustrated) with 3 or 7½ H.P. spindle drive are outstanding for the majority of medium-sized work. The electrically-controlled No. 12 machines give you extremely fast, accurate facilities for small or large quantity production. Broad choice of speeds and feeds, and automatically controlled fast travel plus dual feed rates save operating time.



VERTICAL MILLING MACHINES

No. 2 Verticals, available with 3 or 5 H.P. (3 H.P. illustrated), are designed for rapid, easy set-up and operation on production and toolroom work. All controls are grouped within easy reach of operator, and fast travel movements are provided in all directions. The swiveling spindle head makes it possible to mill and drill at various angles without special fixtures.



UNIVERSAL AND PLAIN MILLING MACHINES

These No. 2 Machines, with full 3 or 5 H.P. drive (No. 2 Universal, 3 H.P. illustrated), incorporate many time-saving features — modern design, tri-motor drive, handy controls and ample speed and feed rates. Extended spindle face provides greater rigidity of cutter support . . . allows using smaller cutters and faster feeds.



Productioneered for Repeatedly Accurate, High-Production **Screw Machine** Work

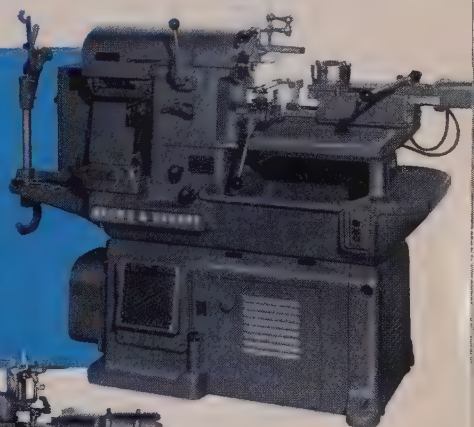
AUTOMATIC SCREW MACHINES

The Nos. 00G (illustrated), 0G, 2G and the new No. 4 machines permit cutting a wide variety of materials at the most efficient speed for each operation . . . you get higher output, better finish, and more uniformly accurate production. Positive chain drive to spindle and a wide range of two-speed combinations and ratios are provided. Machines also made in Cutting-off types.



HAND SCREW MACHINES

Many short-run bar work and second operation jobs can be more profitably handled on these hand operated machines. Available in three sizes — Nos. 00, 0 (illustrated), and 2 — they perform the same operations as automatics . . . can be set up quickly and inexpensively. Utilize many of the same collets and tools used on Brown & Sharpe automatics.



AUTOMATIC SCREW THREADING MACHINE

This machine efficiently produces small parts such as screws, pins, and bushings. It does forming, slotting, and threading simultaneously, and takes full advantage of overlapping operations . . . cuts idle time to a minimum. Capacity: $\frac{1}{8}$ " dia.



AUTOMATIC PINION TURNING MACHINE

Extremely high output of shafts and pinions for precision assemblies, clocks, aircraft instruments, timers, etc., is possible on this machine. Furthermore, its simplicity of set-up and operation eliminates the need for expert pinion turning specialists. Tools may be replaced in minimum time and without disturbing tool setting. Capacity: $\frac{1}{8}$ " dia.



Brown & Sharpe

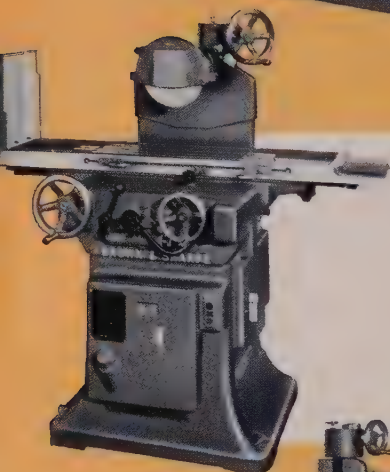


Productioneered for Fast and Precise Cylindrical, Surface, and Tool Grinding



UNIVERSAL AND PLAIN GRINDING MACHINES

One of the most popular machines in this line, the No. 5 Plain (illustrated), makes rapid grinding of small cylindrical work easy and accurate. Once set up, it is operated entirely by two controls — the cross feed handwheel and table start-stop knob. Accurate sizing to tolerances of .0001" on long production runs. Recessed base permits working in a sitting position. Capacity: 3" x 18".



SURFACE GRINDING MACHINES

Nos. 2L, 2LB (hand feed) and No. 5 (hydraulic type) machines are suited for both production and toolroom grinding of accurate flat surfaces. No. 5 (illustrated) particularly is designed for rapid stock removal with fine finish and high precision. Low pressure hydraulic system provides vibrationless application of power, without shock, at all speeds.



CUTTER AND TOOL GRINDING MACHINES

These machines are available in three types: the No. 5 is a small responsive machine particularly suited for end mill sharpening; the No. 10N covers the general field of cutter and tool sharpening; and the No. 13 (illustrated) is designed for grinding small and medium-sized cylindrical work, form grinding, sharpening cutters, reamers, and miscellaneous other work. All three incorporate proven features for profitable operation.

Write for complete information on any of the Brown & Sharpe products listed below.

Brown & Sharpe



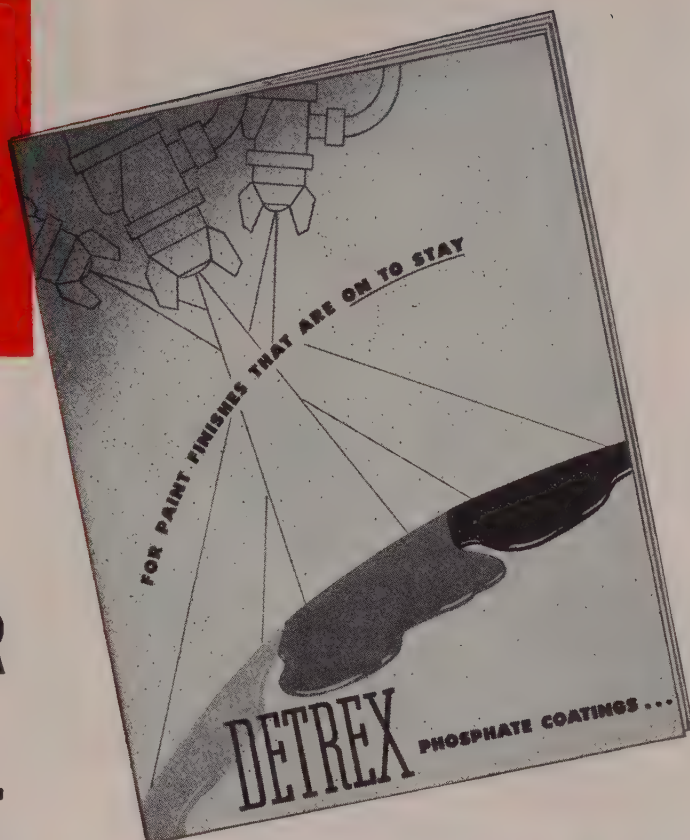
Milling Machines • Grinding Machines • Screw Machines • Machine Tool Accessories • Cutters
Machine Tools • Johanson Gage Blocks • Electronic Measuring Equipment • Permanent Magnet Chucks • Pumps

BROWN & SHARPE MFG. CO., PROVIDENCE 1, R.I., U.S.A.

PRINTED IN U.S.A.

DETREX PHOSPHATE COATINGS

IF YOU
PAINT YOUR
PRODUCT...



you need this free booklet!

... because it tells how Detrex can help you obtain greater sales appeal for your painted metal products through better paint finish and longer paint life.

This new booklet describes PaintBond, a zinc phosphate coating for metal surfaces prior to painting. This fine-grained crystalline coating is applied by spray or immersion means, to provide millions of microscopic crevices into which the paint flows. Your paint is *locked on to stay* for a beautiful, durable finish.

Insoluble in water, PaintBond seals off the metal from moisture and other causes of corrosion. Even if the paint finish is marred or scratched, rust is

confined to the exposed area. The surrounding paint remains locked securely to the metal.

PaintBond is economical to use and meets government specifications for phosphate coated surfaces.

Applications and equipment recommendations are fully described in this new booklet which also tells about the laboratory, manufacturing, engineering, and field service facilities of Detrex—a company long experienced in serving industry with both the equipment and the chemicals for all cleaning and phosphate coating requirements.

For your free copy, fill out and mail the coupon below.



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DEGREASERS • DEGREASING SOLVENTS • WASHERS
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PHOSPHATE COATING PROCESSES

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Please send me without obligation, a free copy of your new phosphate coating booklet.

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Company _____

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Announcing

ELECTROMET'S "Simplex" FERROCHROME

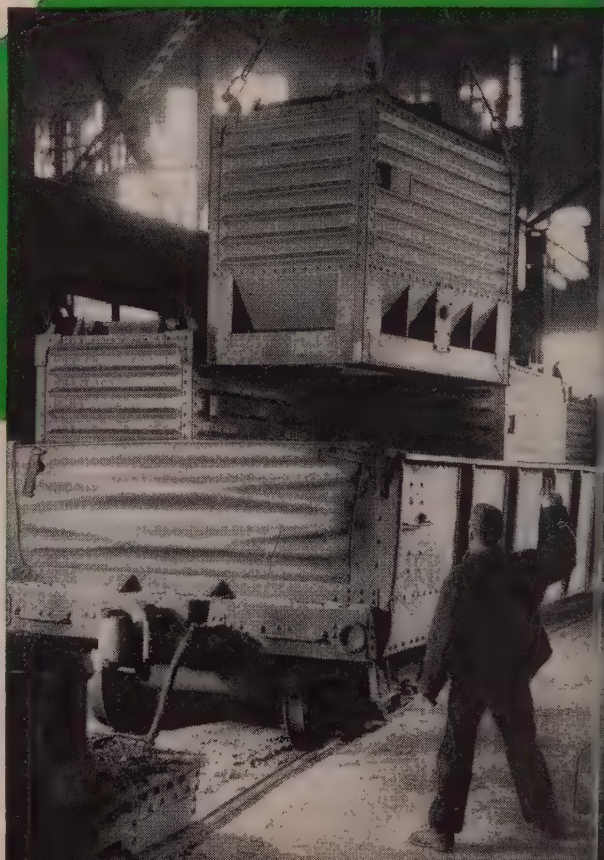
REVOLUTIONARY
DEVELOPMENT
AIDS IN THE
PRODUCTION OF
STAINLESS STEEL

Pellet shown approximately 3/4 actual size.

1 EASY TO HANDLE

SIMPLEX pellets are usually shipped in bulk in container cars. Each container holds up to 10,000 lb. of material. As many as 12 containers, holding a total of 56 tons, can be shipped in one car. This makes it easy to handle large quantities of ferrochrome fast and economically, and prevents contamination.

The terms "Electromet" and "Simplex" are trademarks of Union Carbide and Carbon Corporation.

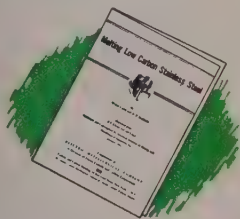


SIMPLEX ferrochrome is a new chromium alloy specially developed by Electro Metallurgical Company to simplify the production of stainless steel. The alloy is suitable for producing all grades of stainless steel and is specially adapted for the extra-low-carbon grades.

Outstanding advantages of SIMPLEX ferrochrome are its extremely low carbon content and surprisingly rapid solubility. These characteristics make it possible to reduce furnace time substantially, and to obtain a consistently high recovery of chromium together with a high metallic yield.

SIMPLEX ferrochrome is uniformly sized. It is produced in the form of pellets about the size and shape of a walnut. It contains about 65 per cent chromium and about 6 per cent silicon. The carbon specification is 0.025 per cent maximum. Maximum 0.010 per cent carbon can be furnished.

For additional information phone, wire, or write one of the ELECTROMET offices. Ask for the ELECTROMET booklet entitled, "Melting Low-Carbon Stainless Steel." It shows the advantages that can be obtained in producing low-carbon stainless steel with SIMPLEX ferrochrome.



ELECTRO METALLURGICAL COMPANY

A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street  New York 17, N. Y.

Offices: Birmingham • Chicago • Cleveland • Detroit • Houston
Los Angeles • New York • Pittsburgh • San Francisco

In Canada: Electro Metallurgical Company of Canada, Limited,
Welland, Ontario

2 LOW CARBON CONTENT

Here is the new SIMPLEX ferrochrome ready for charging in the production of a heat of extra-low-carbon stainless steel. The carbon content of the pellets is so low that the addition of SIMPLEX ferrochrome will not increase the carbon content of the bath.



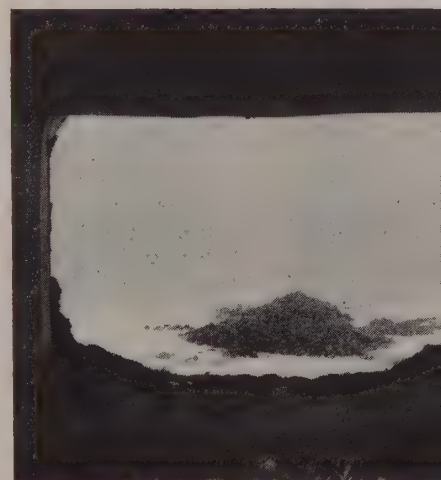
3 FAST SOLUBILITY

A charging machine dumps a loaded box of SIMPLEX ferrochrome in the bath. Because of the speedy solubility of the alloy in pellet form, as much as 15,000 lb. of SIMPLEX ferrochrome can be added to the furnace in one batch.



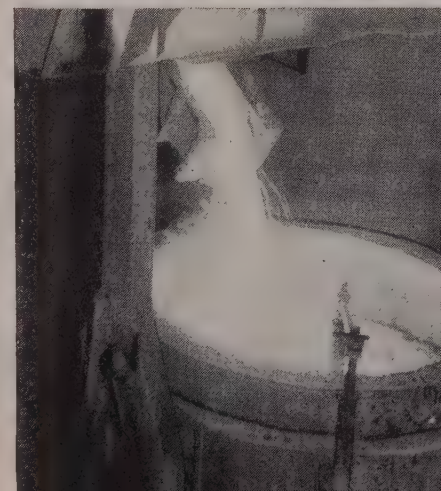
4 REDUCES FURNACE TIME

The alloy pellets dissolve in the bath more readily than does conventional lump ferrochrome. As much as 45,000 lb. of SIMPLEX pellets can be dissolved in slightly more than one hour. This means reduced furnace time.



5 HIGH METALLIC YIELD

The metallic yield averages about 90 per cent when SIMPLEX ferrochrome is used, since the alloy contains enough silicon to reduce metallic oxides in the slag back into the bath. Overall chromium recoveries of 90 to 95 per cent are obtained regularly.



the switch is to **STAINLESS- CLAD PLATES**

for lower costs...
extension of material supplies

More and more, economy-minded buyers are switching to Stainless-Clad Steel Plates as an effective means of extending supplies of critical materials and of beating the high cost of stainless steel.

They find that in numerous types of fabrication these plates give them all the advantages of stainless steel, including high resistance to corrosion—yet with considerable savings in material costs.

Stainless-Clad Plates made by Claymont are a composite of stainless steel permanently bonded to carbon or alloy steel plate. They're easy to fabricate; will not buckle, crack or peel under the severest forming operations. Stainless cladding may be of any specified percentage of total plate from 10% to 50%.

Other Claymont products include Flanged and Dished Heads, Alloy and Carbon Steel Plates, Large Diameter Welded Steel Pipe.

To order, write or call Claymont Steel Products Department, Wickwire Spencer Steel Division, Claymont, Delaware.

THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado

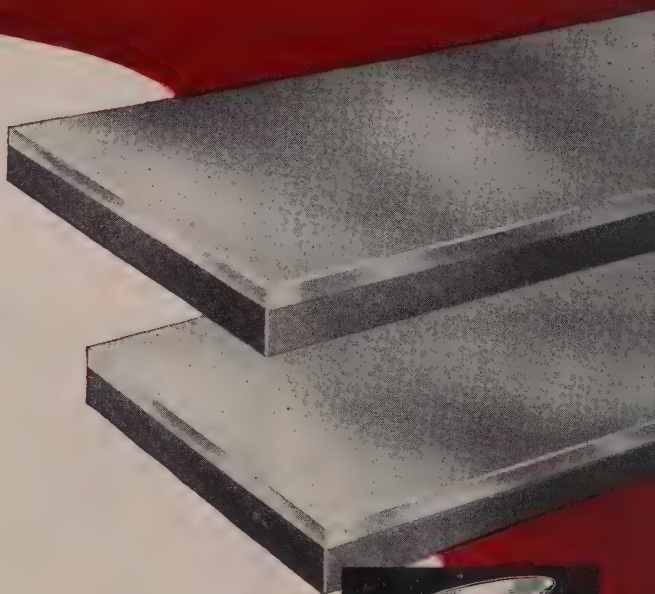
THE CALIFORNIA WIRE CLOTH CORPORATION—Oakland, California

WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New York • Philadelphia

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CLAYMONT STEEL PRODUCTS

PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION



Flanged and Dished Heads



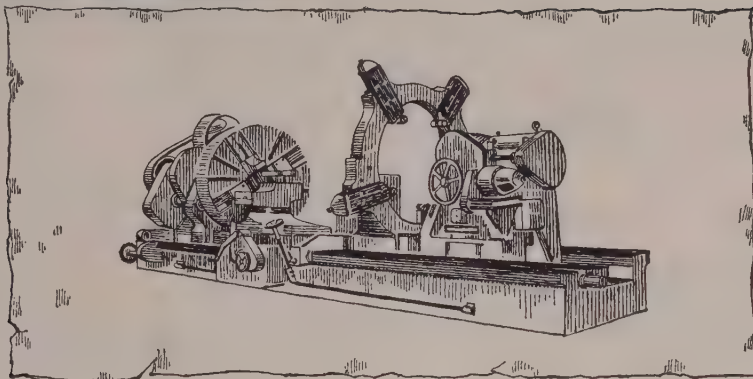
Carbon and Alloy Steel Plates



Large diameter steel pipe

HOW TO INCREASE MACHINE TOOL OUTPUT WITH...

ENGINEERED Rebuilding



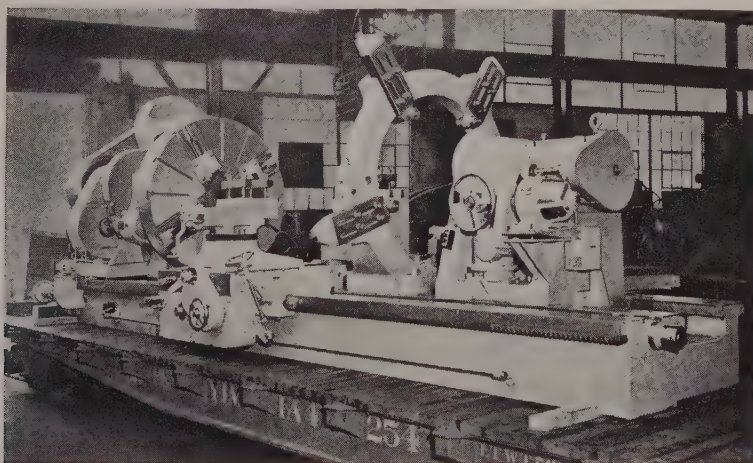
Taking 30 years off the age of a 30-YEAR-OLD LATHE

Simmons rebuilt and modernized this massive 30-year-old 86" x 35' Niles Bement Pond Lathe to make it perform *better than when new!*

Now it's back on the line stepping up production for one of America's outstanding steel companies. Simmons re-

equipped it with these modern features: hardened steel ways; herringbone gears; rapid traverse to carriage; anti-friction bearings; V-belt drive; motor traverse for tailstock.

For over 40 years, Simmons has always done much more than mere machine tool "overhauling" or "reactivating."



Simmons Engineered Rebuilding is a *complete* rebuilding and modernization "from the ground up." It includes dismantling down to main castings, thorough cleaning, testing of all bearings, replacement of worn parts, re-wiring of electrical circuits, and so very many other jobs to make the *modernized* machine operate at an even *higher* capacity than its original capacity when brand new.

And that's not all! The rebuilt and

modernized machine tool is "witness-tested" on the Simmons plant floor: a Simmons service engineer carefully checks its performance under actual working conditions, one of the reasons why Simmons Engineered Rebuilding delivers guaranteed satisfaction, delivers it faster and at bigger money savings, especially on the larger type tools.

Send us a list of your machine tools that may need rebuilding. We will

promptly quote price and delivery. Write, wire or phone today.

Simmons Machine Tool Corporation
1755 N. Broadway, Albany 1, N.Y.
 New York Office: 50 East 42nd St.
 Philadelphia: Phone Vctor 8-3133
 Pittsburgh: Phone PEnhurst 1-3700

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ENGINEERED REBUILDING
GIVES MACHINE TOOLS
A NEW LEASE ON LIFE

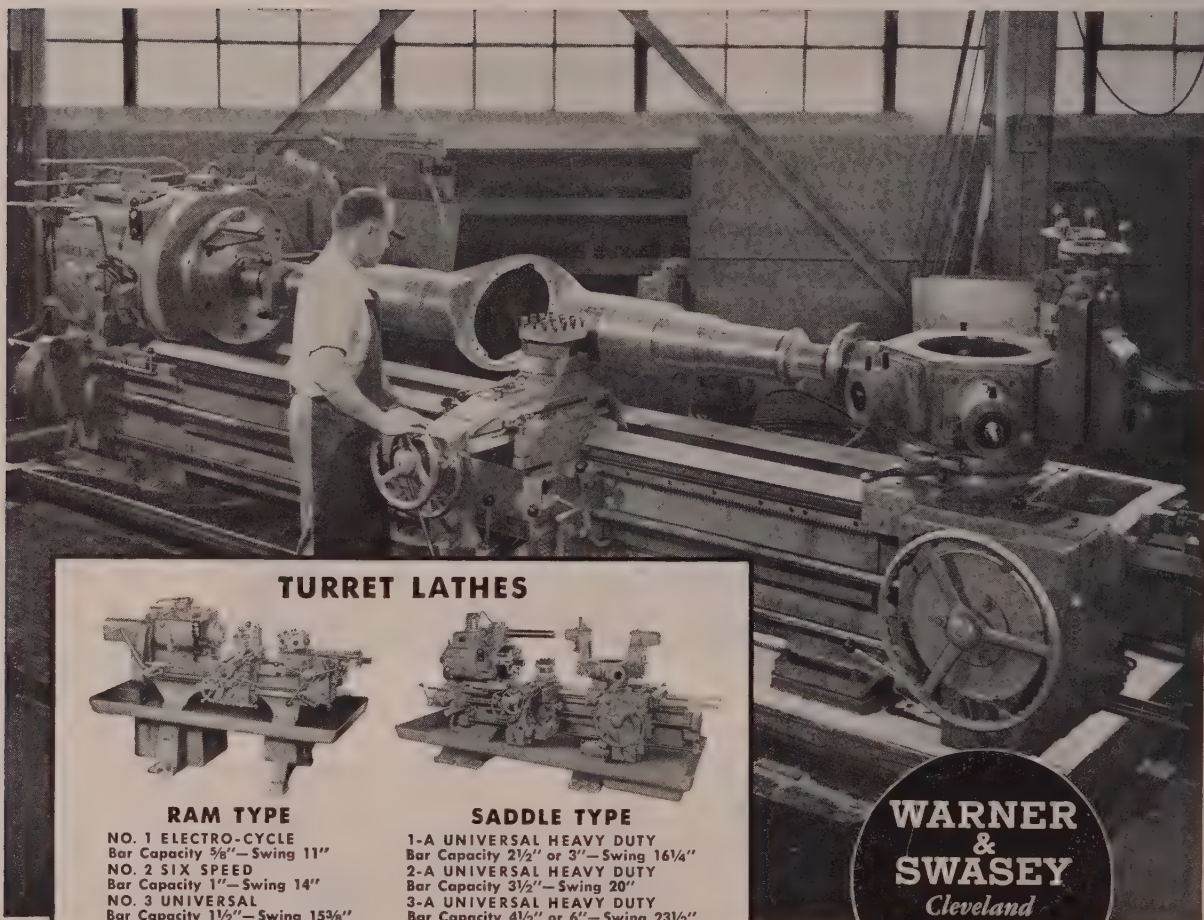
"KING SIZE" or "REGULAR"

**WARNER & SWASEY
OFFERS BOTH**

● This Warner & Swasey in the plant of a large road machinery builder is a good example of what we mean when we say Warner & Swasey Turret Lathes are built in sizes and capacities to handle all sorts of jobs. This machine, a 4-A Universal Heavy Duty Saddle Type Turret Lathe, has a bed six feet longer than standard in order to turn the "king size" rear axle housings used in the giant roadbuilding machinery. And tolerances of .001" are held on these large pieces.

When you buy a Warner & Swasey—whether it's to handle the 5/8" bar capacity work of the No. 1 E-C, or jobs requiring the 12" bar capacity of the big 4-A—you buy a machine with an industry-wide reputation for ruggedness and extreme precision. It's a machine you can count on for high productivity, low upkeep, ease of operation, and dependability in holding its built-in accuracy for many years ahead.

So whenever you have a turning problem, call in your nearest Warner & Swasey Field Representative. He'll work with you and recommend the right machine for your range of work.

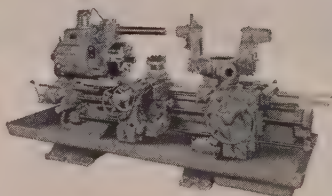


TURRET LATHES



RAM TYPE

NO. 1 ELECTRO-CYCLE
Bar Capacity 5/8"—Swing 11"
NO. 2 SIX SPEED
Bar Capacity 1"—Swing 14"
NO. 3 UNIVERSAL
Bar Capacity 1 1/2"—Swing 15 3/8"
NO. 4 UNIVERSAL
Bar Capacity 2"—Swing 18 1/8"
NO. 5 UNIVERSAL
Bar Capacity 2 1/2"—Swing 20"



SADDLE TYPE

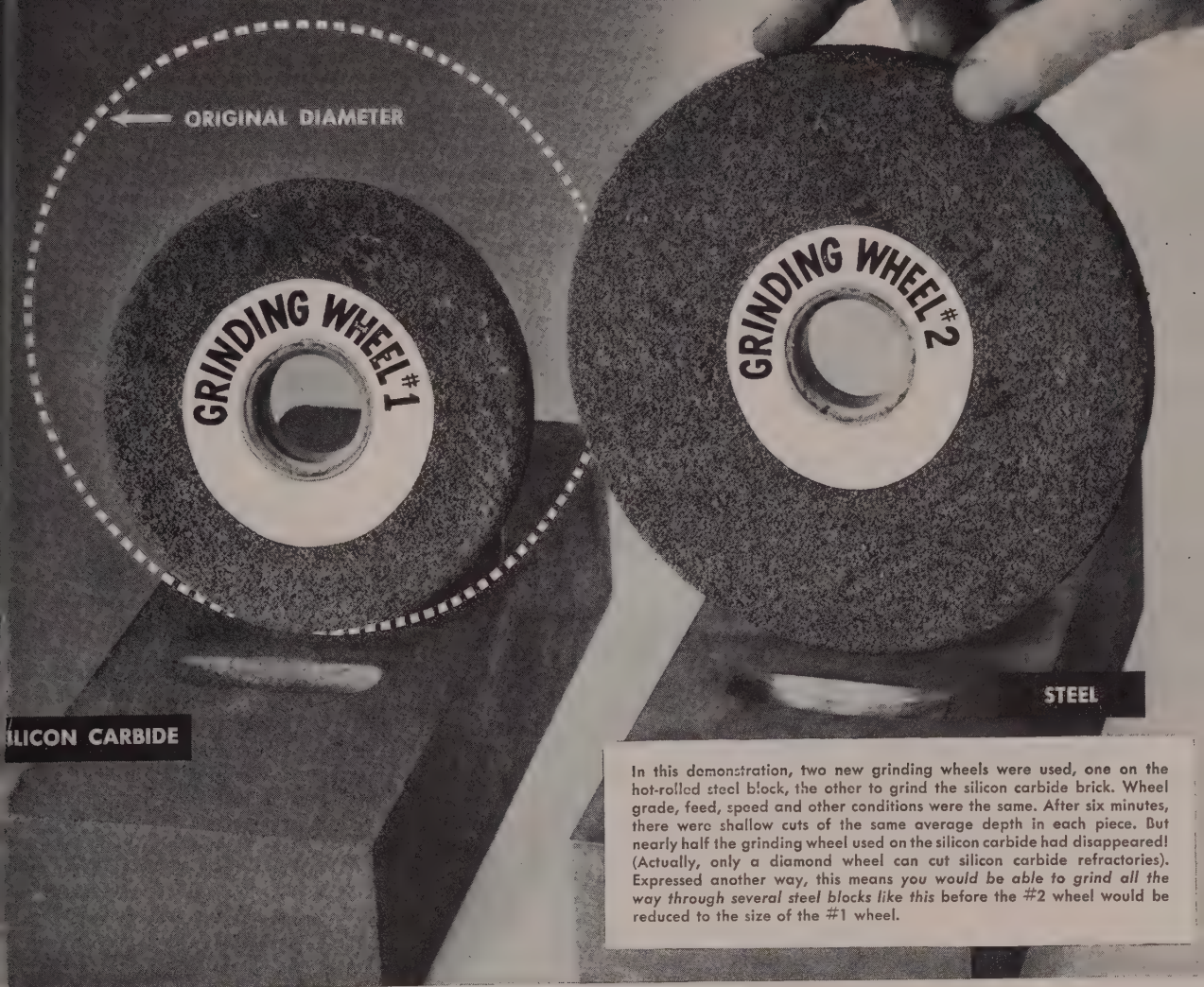
1-A UNIVERSAL HEAVY DUTY
Bar Capacity 2 1/2" or 3"—Swing 16 1/4"
2-A UNIVERSAL HEAVY DUTY
Bar Capacity 3 1/2"—Swing 20"
3-A UNIVERSAL HEAVY DUTY
Bar Capacity 4 1/2" or 6"—Swing 23 1/2"
4-A UNIVERSAL HEAVY DUTY
Bar Capacity 8", 9" or 12"—Swing 28 1/4"

**WARNER
&
SWASEY**

Cleveland

**PRECISION
MACHINERY
SINCE 1880**

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY



In this demonstration, two new grinding wheels were used, one on the hot-rolled steel block, the other to grind the silicon carbide brick. Wheel grade, feed, speed and other conditions were the same. After six minutes, there were shallow cuts of the same average depth in each piece. But nearly half the grinding wheel used on the silicon carbide had disappeared! (Actually, only a diamond wheel can cut silicon carbide refractories). Expressed another way, this means you would be able to grind all the way through several steel blocks like this before the #2 wheel would be reduced to the size of the #1 wheel.

Harder than steel, more abrasion-resistant than paving blocks — silicon carbide is... so hard it wears out grinding wheels

As hard as steel is, it can't compare with our silicon carbide refractories (trademarked CARBOFRAX®). Used under the toughest abrasion conditions known, these refractories have repeatedly proved able to outwear other normally durable lining materials. *This applies to room-temperature applications as well as to others ranging up to 3000 F, or more. It applies to abrasion caused by rubbing or sliding, and to abrasion caused by impingement of sharp particles traveling at high velocities.*

For example: In cyclone dust collectors where there is a constant blast of highly abrasive particles . . . in coke chutes and hoppers that must withstand punishing cascades of sharp-edged coke . . . in hot blast mains where abrasive dust is entrained in high-velocity gases . . . in billet heating furnaces where metal slabs are dragged across the floor. In short, wherever other materials need replacement so often as to make their use uneconomical.

Have you any spots like these; areas highly vulnerable

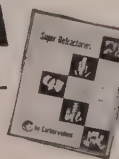
to abrasion? Then check on these CARBOFRAX refractories. Available as tile, brick or special, close-tolerance shapes, these materials can give your equipment "armor-plate" protection. They are particularly valuable where heat or chemical action may be teamed with abrasion. Write for our booklet that describes all the interesting properties of this and other unique super refractories. No obligation, of course.

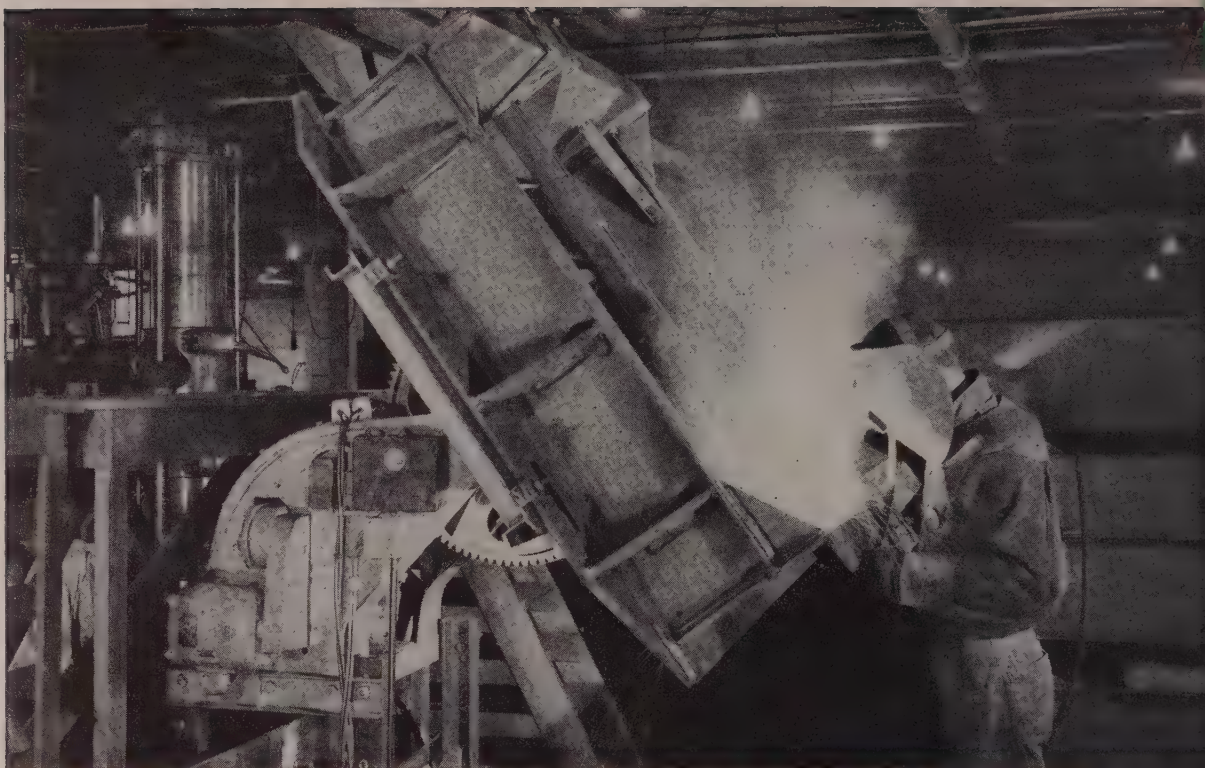
CARBORUNDUM

Registered Trade Mark

Dept. G-63, Refractories Division
The Carborundum Company, Perth Amboy, N. J.
Send complimentary copy of Super Refractories booklet to:

NAME _____
POSITION _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____





WORTHINGTON WELDING POSITIONER ELIMINATES time-wasting handling of the work-piece . . . increases arc-time by tilting the work into position for continuous, economical downhand welding. Capacities from 100 lbs to 30 tons. Also: Turning Rolls from 3 to 150 tons, stationary and self-propelled.

A way to get more and better welding from your welders

Every minute your welders spend climbing, turning and propping is *lost* welding time.

Turn this waste time into *all arc-time* with Worthington Welding Positioners that tilt or turn all welds into position—*without delay*—for *continuous* downhand automatic or manual welding. Today's labor scarcity makes this increased production more important than ever.

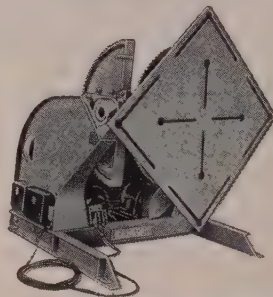
These Positioners lower costs and boost production up to 50%. Downhand welding is *quicker* (only one pass instead of two or three) . . . *better* (deeper penetration with higher current, heavier electrodes, faster deposition of weld metal) . . . *neater* (weld metal levels itself). There's less rod waste, too.

Where can you see a Worthington Welding Positioner at work near you? Just write Worthington Corporation, Plainfield, N. J., for this information or for Bulletin 210D.



HOW WORTHINGTON WELDING POSITIONERS PRODUCE BETTER WELDS

When the welder has to climb over, prop or flop the work-piece, he may only be able to use downhand welding over a limited area (Figure 1). With a Worthington Welding Positioner, the work is continually tilted or rotated automatically into position for downhand welding (Figure 2).



WORTHINGTON'S UNIVERSAL TABLE TOP makes the Welding Positioner as profitable on job work as mass production. Those "T" slots make the table adaptable to any shape of work-piece and a wide range of sizes. No special jigs or fixtures needed.

Y.2.3

WORTHINGTON



Welding Positioners
Turning Rolls



United States and Lower Manhattan, New York City

Robert Yarnall Richie Photo

The Invisible Background of Industrial Progress

Farsighted Industrial America is forging its maritime links with all parts of the world. For security and peacetime commerce, fast ships are more essential now than ever in our history. Free enterprise and initiative promote the development and construction of such engineering feats as the S. S. *United States*. Nine hundred and ninety feet in length, she is the largest American ship ever built. From her tremendous turbines and pumps down to lifeboat launching equipment and portholes, the equipment represents "The Invisible Background of Industrial Progress."

★ *Modern Machine Tools*, the basic means of machining interchangeable parts, make possible the fulfillment of such engineering enterprises.

Bullard is indeed proud that many of the parts for the S. S. *United States* were machined on their equipment and that they have made their niche in American progress.

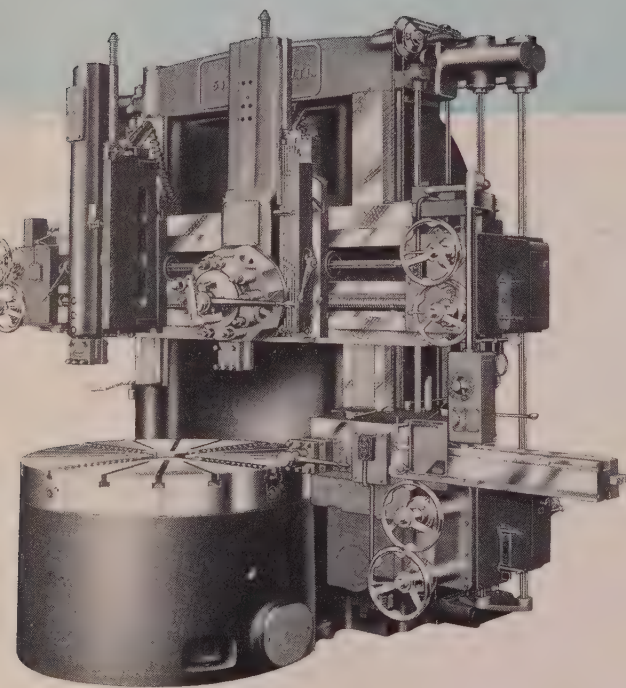
★ *For greater manufacturing economy REFER to next page.*

THE BULLARD COMPANY
BRIDGEPORT 2, CONNECTICUT

**BULLARD
MACHINE TOOLS
FOR GREATER
MANUFACTURING
ECONOMY**



The Bullard Cut Master Vertical Turret Lathes, built in six sizes 30-36-42-54-64 and 74" with various head combinations, offer rigidity, accuracy, metal removing ability and convenience of operation, assuring profitable production on single piece jobs or on the long runs.



Manufacturing industries the world over know the versatility, accuracy and efficiency of Bullard Machine Tools. Among these are many who contributed to the building of the most modern ship *United States*.

We proudly claim our part in this outstanding maritime project through manufacturers using Bullard machines in the production of pumps, compressors, valves, electric motors, turbines, shafts, gears for speed reducers, parts for winches and davits as well as the machining of every porthole frame.

Such broad acknowledgement of the use of Bullard machines bespeaks not only confidence in productive ability but an assurance of sound investment in manufacturing equipment.



Time saved is money earned. Write now for information on the six sizes of Cut Master Vertical Turret Lathes.

THE BULLARD COMPANY BRIDGEPORT 2, CONNECTICUT

HYSTER PRESENTS...

Two Completely NEW Lift Trucks!



30" Free Lift
75" Turning Radius
38" Wide
82½" Collapsed
Height (with 9' lift)



The Ultimate in 4000-lb.
Lift Truck Maneuverability



STREAMLINED AND FUNCTIONALLY DESIGNED FOR UNEQUALED PERFORMANCE IN CAR LOADING, WAREHOUSE AND ALL OTHER CLOSE-QUARTER OPERATIONS

Hyster now offers, in addition to the pneumatic-tired 4000-lb. YT-40 Lift Truck, a *new* lift truck in the 3000-4000-lb. class—*designed specifically for close-quarter operation!*

The new Hyster YC-40 is smaller than the pneumatic-tired YT-40 because it is *functionally* designed to more compact dimensions, utilizing smaller cushion tires. *The YC-40 is recommended for those applications*

where it is not necessary to use pneumatic tires.

The new Hyster UC-30 is basically a YC-40 Lift Truck with a lighter counterweight, but with the same engine. Both incorporate advanced features not found in any other lift truck today! Call your Hyster dealer, or write for Catalog 1241 to:

HYSTER COMPANY

2902-75 N. E. Clackamas St. 1010-75 Myers St.
Portland 8, Oregon Danville, Illinois

THE UC-30

Capacity, 3000 lbs.
(24" load center)
Length, only 74¾"

THE YC-40

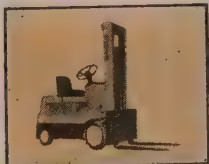
Capacity, 4000 lbs.
(at 24" load center)
Length, only 78¾"



Be Sure to Call HYSTER Before You Buy ANY Lift Truck!



Hyster 20
for 1000-2000-lb. work
requiring pneumatic tires.



Hyster UC-30
for 3000-lb. close-quarter
work. Cushion tires.



Hyster YT-40
for 4000-lb. work requiring
pneumatic tires.



Hyster YC-40
for 4000-lb. work in close
quarters. Cushion tires.

**THERE'S PROFIT IN
HYSTER
POWER**

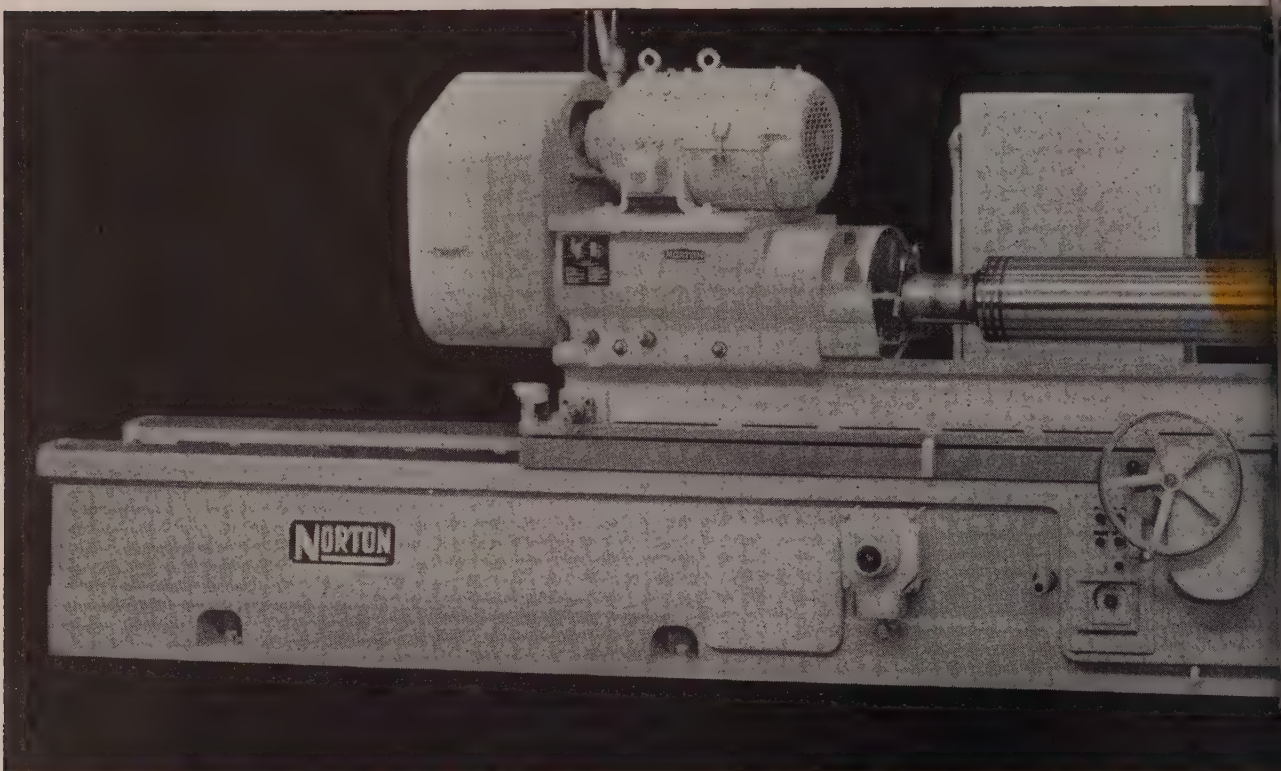


HYSTER COMPANY

• FOUR FACTORIES: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

You get bigger profits...the real "TOUCH OF GOLD"

with the new Norton
C-2 cylindrical grinder



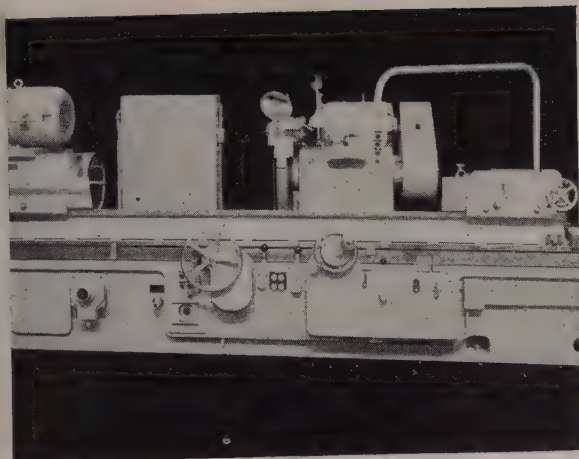
Faster cutting . . . quicker set-up . . . easier operation

This is the kind of grinding machine you expect from Norton — one that's tops for accuracy, production rate and ease of operation.

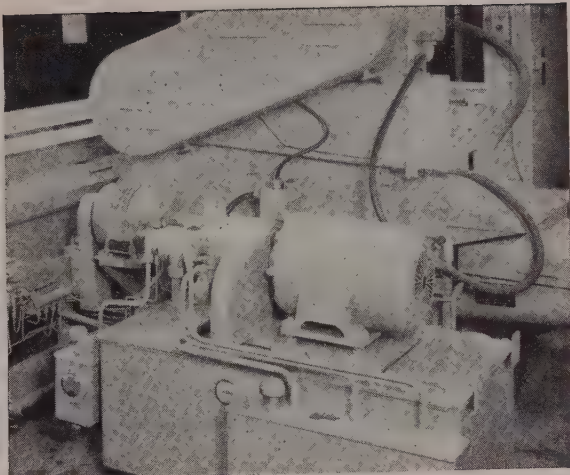
The new C-2 gives you more heavy production because it works more of the time — and works faster and easier.

When used as a semiautomatic all your operator does is set it up and push the button for automatic grinding to exact size and finish.

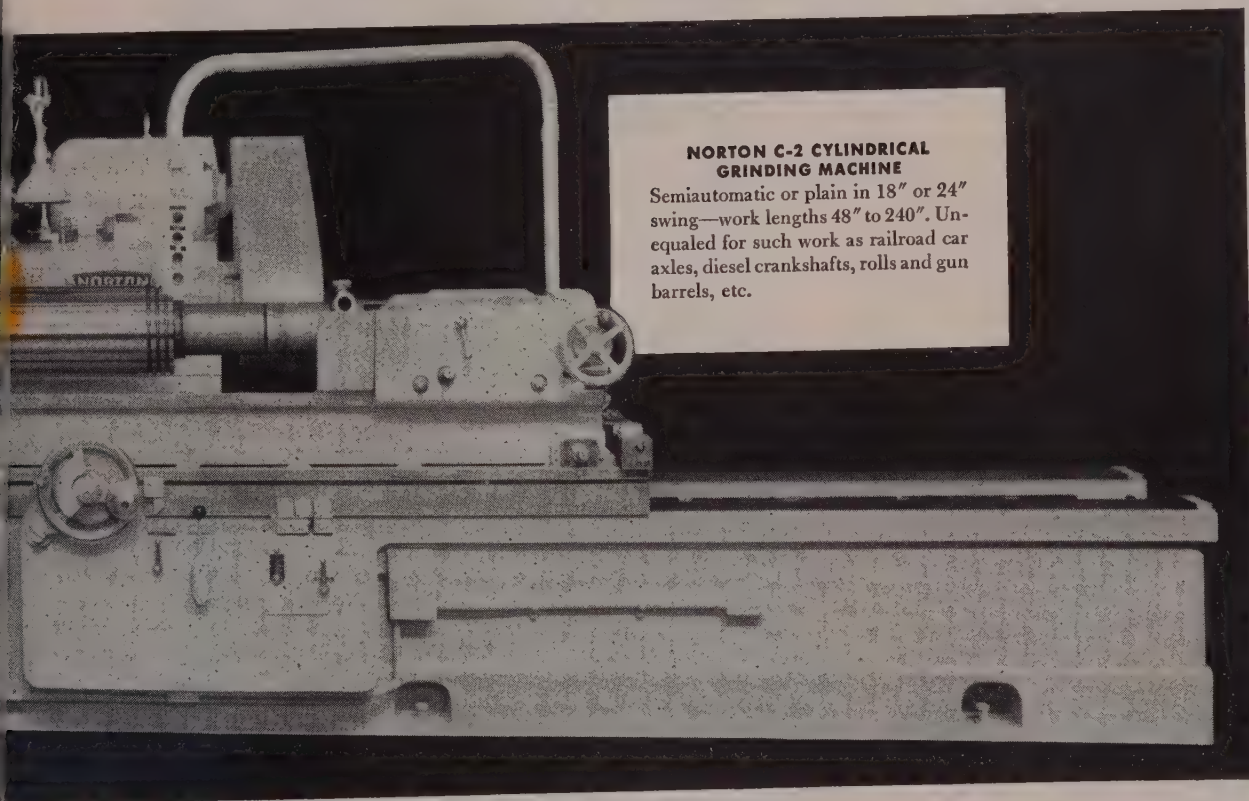
Remember, only Norton offers you such long experience in both grinding wheels and machines — assuring you the



EASY TO SET UP AND OPERATE. All controls in front for minimum set-up time, quick change-over and no reaching by operator. Graduated feed hand wheel indicates feed. "Click-counter" signals each .0001" reduction in work diameter. Table-truing and grinding speeds may be pre-set, and obtained by selector lever.



EASY TO MAINTAIN. All maintenance points on outside. Pumps, motors, filters, lubrication valves and all reservoirs easily accessible. Electrical controls grouped for easy inspection and enclosed for protection.



NORTON C-2 CYLINDRICAL GRINDING MACHINE

Semiautomatic or plain in 18" or 24" swing—work lengths 48" to 240". Unequaled for such work as railroad car axles, diesel crankshafts, rolls and gun barrels, etc.

...less down-time

value-adding, "Touch of Gold" that means more and better products for less cost.

Get ALL The Facts. Your Norton Representative will be glad to give you further details on the new C-2, and to discuss your grinding problems or, write direct to NORTON COMPANY, Machine Division, Worcester 6, Mass.

To Economize Modernize With NEW



GRINDERS and LAPPERS

Making better products to make other products better

District Sales Offices: Hartford • New York • Cleveland • Chicago • Detroit
In Canada: J. H. Ryder Machinery Co., Ltd., Toronto 5

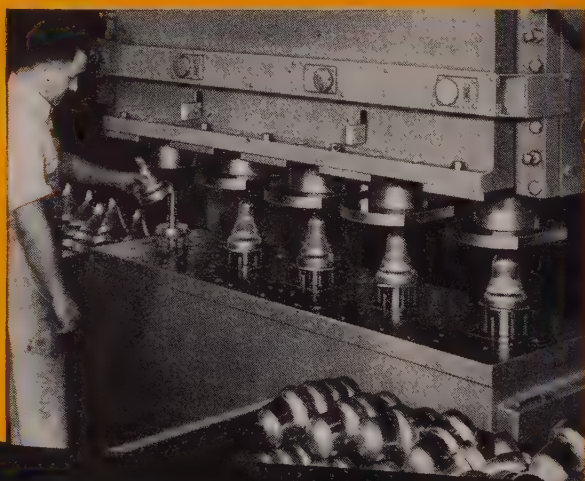
NIAGARA

SERIES B GAP FRAME Double Crank Presses

Niagara B-4 x 72 Press at the General Machine Works in Los Angeles. It is shown here fitted with two dies for forming operations on an automatic deflector.



The same press as shown above arranged with dies for redrawing projectile parts in 5 steps. Shells are transferred manually from die to die.



NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.

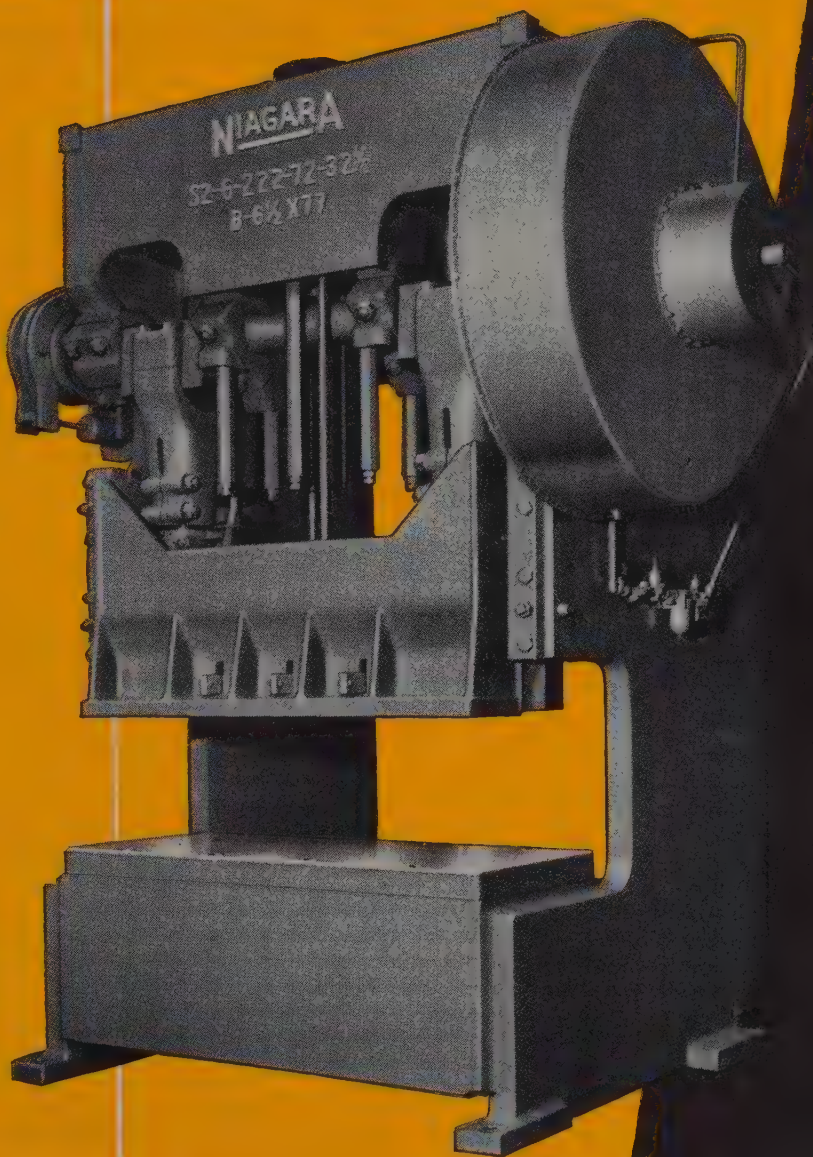
* *Manufacturers of a complete line of sheet metal working equipment ranging from small hand tools up to large power operated machinery.*

Versatility and High Production

- Gap frame convenience with double crank width.
- Ideal for long progressive dies or multi-station dies.
- Rear of press open for full accessibility.
- One piece welded steel frame for maximum rigidity and long die life.
- Exclusive Niagara Sleeve Clutches for maximum productive strokes per minute and minimum maintenance cost.
- Niagara cushions for drawing operations.
- Automatic feeds for high production jobs.

Write for Bulletin

Niagara B-6½ x 77 Gap Frame Double Crank Press. Air actuated, electrically controlled sleeve clutch with friction clutch convenience and sleeve clutch economy. Air releasing brake. Clutch and gearing operating in a bath of oil. Air counterbalance for slide with surge tank over-size cylinder and pressure regulating valve to compensate for various weights of dies. Cross bar knockout in slide. V-belt motor drive.



DISTRICT OFFICES: NEW YORK • CLEVELAND • DETROIT • PHILADELPHIA

here it is **Rodgers** *new* **3 in 1**

OPEN YOKE PRESS

Here is an all-around press available in 100, 200, 300 and 400 ton capacities. It incorporates features that could be found only on standard shop and platen presses. Now at the price of one press you can perform the work formerly done by three.

Performs the work of three separate presses!

1—SHOP PRESS . . . Incorporates all of the features of the best standard shop presses.



2—FORCING PRESS . . . Practically every job that can be done on a regular forcing press can be handled on this new press.



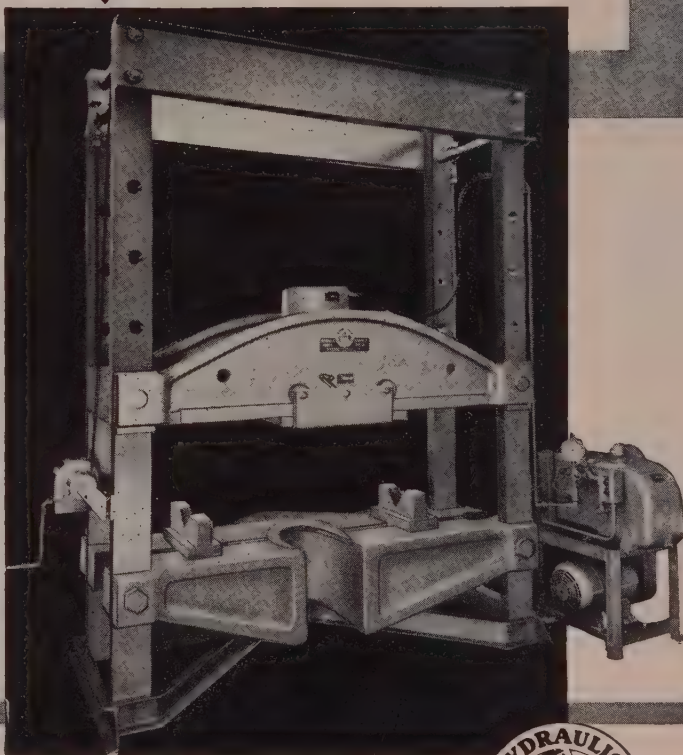
3—PLATEN PRESS . . . Full pressure can be applied across the entire width of the machined yoke bed.



Check these outstanding features:

- Yoke member bed machined over entire surface.
- Rugged, machined "V" blocks accurately centered in yoke member groove.
- Wear collar supplied for inserting in yoke recess.
- Bed plate insert covers yoke recess to provide continuous flat working surface.
- Recess takes yoke adapters normally used with Rodgers Forcing Presses.
- Movable cylinder with locking device provides full pressure across entire width of press.
- Clear, open ends permit entrance of long material.
- Choice of Hand Operated or Power Driven Hydraulic Pumps.
- Hand operated winch raises and lowers bolster.

Write for Catalog 315A today!



Rodgers Hydraulic, Inc.

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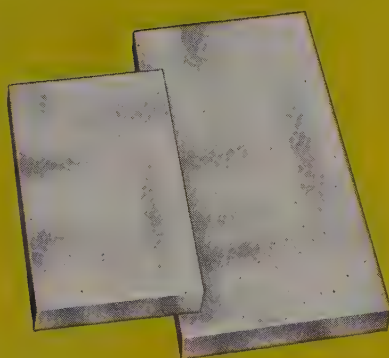
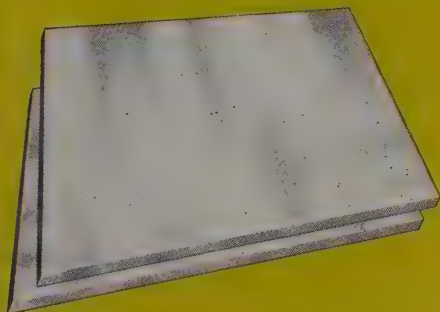


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AND WIRE COMPANY

for carbon • alloy • stainless steel

plates • sheets • tubing • bars • structurals



to your exact requirements



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Central Steel & Wire Company

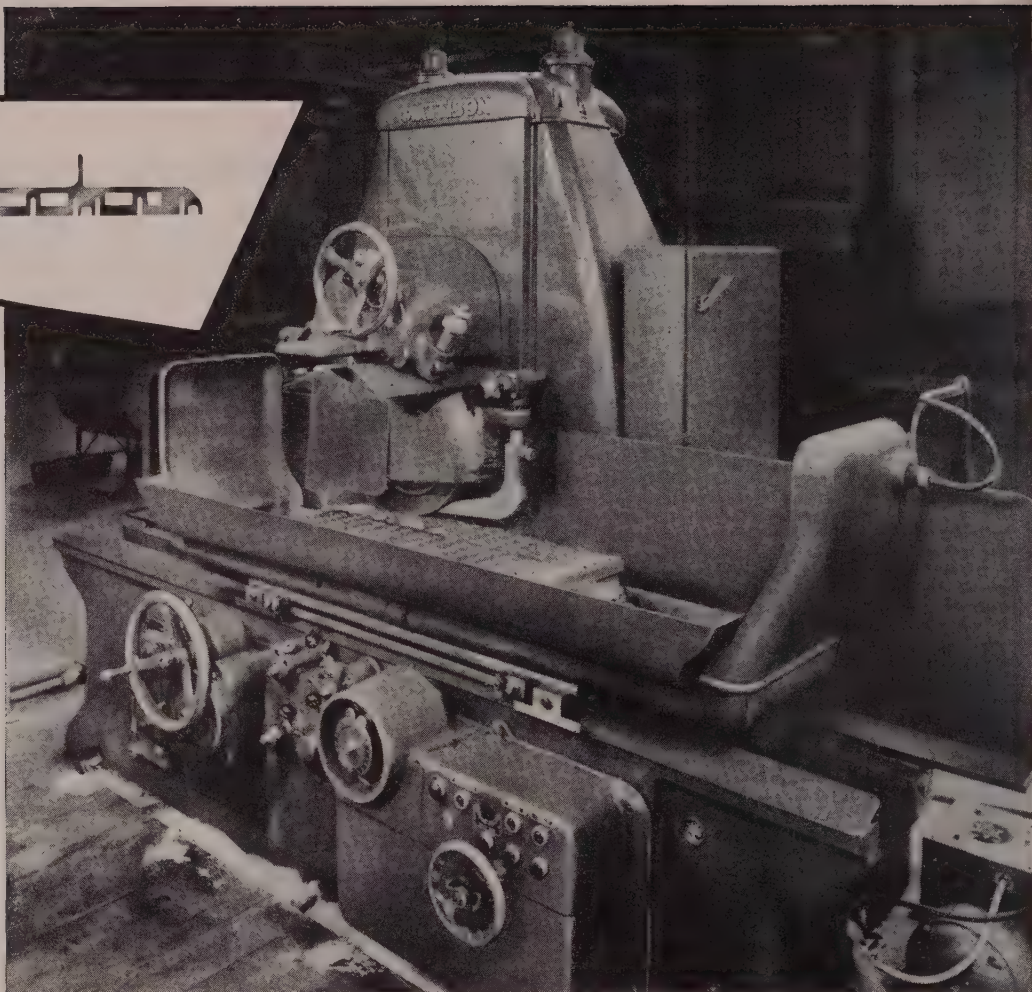
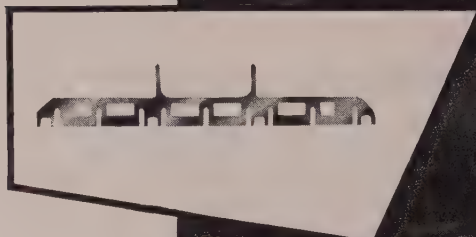
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.020 THICK BLADES GROUND 440 AT A TIME ON MATTISON GRINDER FOR SUNBEAM CORPORATION

Here is an unusual grinding job at the Sunbeam Corporation Plant being performed rapidly and accurately with the Mattison Grinder shown above. 440 Shavemaster blades only .020" thick are ground at one time at a considerable saving in time over previous method.

With the Mattison High-Powered Precision Surface Grinder you have the high power and rugged, double-column construction for rapid stock removal; large capacity which means more pieces of work per load; and the precision and sensitivity necessary for fine, high-quality finish and accuracy to close limits.

This combination not only enables you to step up production on small parts but permits grinding large work which previously could not be handled. Send for free circular containing complete information as well as numerous other examples of work ground on the Mattison Grinder.

MATTISON

MACHINE WORKS

ROCKFORD • ILLINOIS

McLouth

STAINLESS

Steel



For the product you make
today and the product you
plan for tomorrow.

McLOUTH STEEL CORPORATION
DETROIT, MICHIGAN

Manufacturers of Stainless and Carbon Steels



Symbol of 1600 hands that know how

Hands pledged to a common cause—hands that are skilled at their job and devoted to building top quality into every weldment. Hands of the metallurgist, of engineers and management—most important, hands that do the welding, the shaping, the machining and the inspecting—these are the hands that spell out the meaning of AWQ—American Welding Quality.

We know of no better guarantee

of quality than a skilled worker with a sincere desire to do his best. This is the know-how, the care, the quality that American Welding offers you.



*A company you'll
like to deal with*

If your products involve either fusion or resistance welding of ferrous or non-ferrous metals, let us study your problem. We can apply over a third of a century's experience to your requirements—backed by 1600 hands that know how.

THE AMERICAN WELDING & MANUFACTURING COMPANY • WARREN • OHIO

Metalworking Outlook

STEEL

July 6, 1953

Freight Absorption: It's Legal

You can absorb freight and still be within the law, provided you do it without intent to defraud. The Federal Trade Commission has a more liberal viewpoint on the matter now. But there has been so much confusion about it arising from court decisions and at least one ambiguous statement by a former commission member that legislation clearing up the situation is probably necessary. A bill that would do the job, in the opinion of the majority in industry and on the FTC, would be S. 1377, introduced by Sen. Homer Capehart (Rep., Ind.). Currently the question is academic because few industries are absorbing freight, but it may become a vital one this fall when economic demand catches up with supply.

Bigger Buyer by 1975

The nation's truckers annually may be spending \$10.2 billion for new trucks, trailers and replacement parts by 1975, compared with \$3.7 billion in 1952. As of the end of last year, some 9 million trucks were on the road; an estimated 20 million will be hauling cargo by 1975, points out American Trucking Associations Inc. ATA bases its predictions on Paley Commission prognostications, plus the steady climb in freight hauled by trucks. In the first quarter of 1953, intercity truck tonnage transported by class I motor carriers rose 10 per cent from the same period last year.

Quick Start for New Model

From sketches to reality in less than 12 months—that's the story behind the first Chevrolet Corvette which rolled off Flint, Mich., assembly lines last week. After tests, production is slated for 50 units per month, the first volume production at even that rate of an American sports car. The Corvette, with fiberglass body, is priced at \$3250, including automatic transmission as standard equipment.

Muntz Tries Air Conditioners

Muntz Industries Inc. is starting a factory-to-you sales campaign for home air conditioning units. The first one went on sale last week. They'll all be marketed just like the television sets through direct Muntz factory branches. Success of the technique is indicated by the fact that Muntz TV sales now are totaling 20,000 sets a month, compared with 10,000 monthly a year ago.

Housing Law Should Help

The new federal housing law signed last week by the President should help assure a 1-million-unit home construction year in 1953. The new law authorizes lower down payments on low-cost, FHA-insured private homes and continues for one year most of the FHA mortgage insurance programs. FHA gets an additional \$1.5 billion as mortgage insurance authority. The law continues for one year federal aid for private home builders in mili-

Metalworking

Outlook

tary areas and assistance to defense communities for housing and community facilities. Higher interest rates are permitted on direct VA home loans and on FHA-insured mortgages for co-operative military and defense rental housing. Aid to prefabricators is discontinued.

More Titanium?

Watch for a big increase in the titanium production goal. The revision will have to come because the demand for titanium, particularly for aircraft fabricating, is outstripping production. The present goal is 18,000 tons annually. Probably the next firm to get into commercial titanium output will be Monsanto Chemical Co.

Preference for Pensions

Today's executives want pensions or higher annuities rather than salary increases, says Commerce Clearing House. Income after retirement is taxed at a lower rate than the same amount would be if added to an already high salary. Companies are also getting around high taxes by paying raises over a period of years to minimize the tax effect. Added to favorable pensions, the move helps keep executives with the firm.

Closer Spending Scrutiny

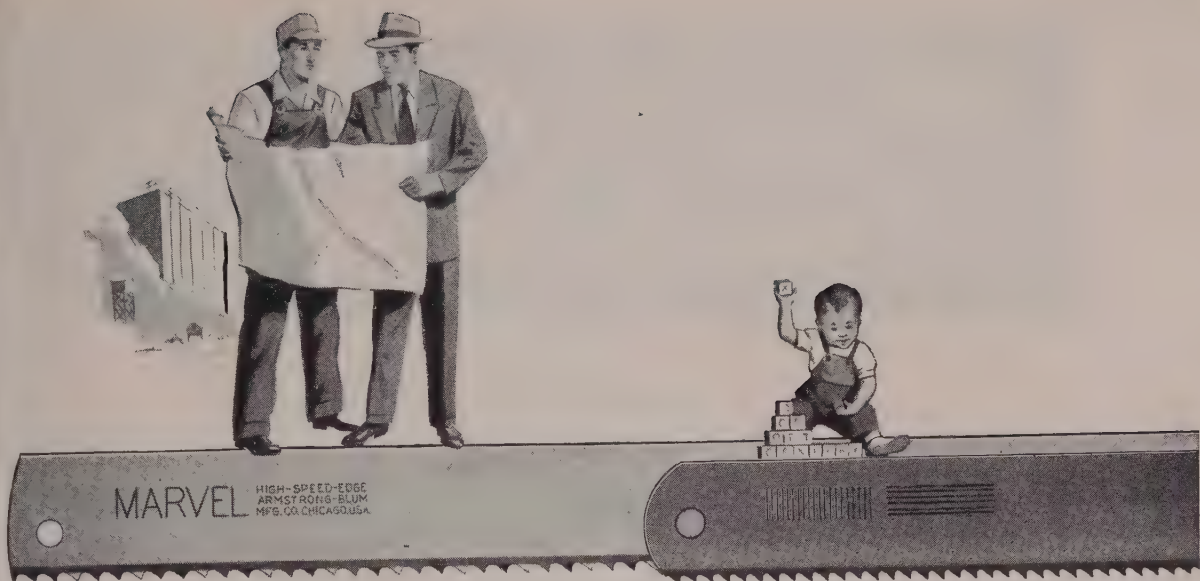
You can expect even closer White House scrutiny of defense and other government spending from now on. The unexpectedly high federal deficit of \$9.4 billion in fiscal 1953 has administration leaders thoroughly alarmed. It is \$3.5 billion higher than that estimated last January. The fiscal 1952 deficit was \$4 billion.

Straws in the Wind

The U.S. deserves some of the credit in bringing about increased molybdenum capacity to balance demand at last, says Climax Molybdenum Co. . . . American Radiator & Standard Sanitary Corp. raised plumbing fixture and radiator heating equipment prices 5 per cent because of increases in material and labor costs. . . . Murray Corp. of America, maker of auto bodies, home appliances and plumbing fixtures, bought Eljer Co., maker of plumbing fixtures, for \$16 million.

This Week in Metalworking

Purchasing agents are gaining control of their components inventories (p. 63). . . . Hydrotor starting systems may revolutionize starting mechanisms in automotive, aircraft, marine and other equipment (p. 65). . . . Reorganization of the Defense department is providing businessmen with a more simplified echelon of officials to deal with (p. 66). . . . Some 200,000 heat pumps (they both warm and cool houses) may be sold at the average installation price of under \$2000 by 1960 (p. 67). . . . Rapid progress is being made in recovering manganese from steel furnace slags and low-grade ore deposits (p. 68). . . . Sales of prefabricated steel buildings will hold their own with the more conventional units, says Butler Mfg. Co., Kansas City, Mo. (p. 74). . . . Investment castings, a World War II baby, will pass the \$100 million mark in sales volume this year (p. 75).



...but

Experience Cannot be Copied

More than a quarter-century ago MARVEL invented and basically patented the MARVEL High-Speed-Edge Hack Saw Blade—the UNBREAKABLE blade that increased hack sawing efficiency many-fold.

Every MARVEL Hack Saw Blade ever sold has been of that basic welded high-speed-edge construction, with constant improvements from year to year, as EXPERIENCE augmented the “know-how” . . .

MARVEL is not “tied” to any single source of steel supply, and has always used the best high speed steels that became available from time to time as metallurgy progressed. When-as-and-if finer steels are developed—and are proven commercially practical for welded-edge hack saw blades—MARVEL will use them, regardless of cost or source . . .

There is only one genuine MARVEL High-Speed-Edge! All other “composite” or “welded-edge” hack saw blades are merely flattering attempts to imitate — without the “know-how” of MARVEL EXPERIENCE . . .

Insist upon *genuine* MARVEL High-Speed-Edge when buying hack saw blades—and be **SAFE**, for you can depend upon MARVEL. They have been “tested”, “pre-tested”, and “re-tested” by thousands of users for more than a quarter-century!



ARMSTRONG-BLUM MFG. CO. • 5700 Bloomingdale Ave. • Chicago 39, U. S. A.

Mr
De
Re
13

Detroit 207

"Wonderful cooperation ... Through the years"

Dear [REDACTED]

On March 30th, a number of changes were made in our purchasing set-up which affected all buyers. As of that date, I am no longer the Steel buyer, my new duty is buyer for Electronic items, [REDACTED].

It is rather difficult for me to put down in writing my thoughts as to how to thank you, [REDACTED], and all the people in your organization for the most wonderful co-operation and courteous reception received at all times. Through the years, my association with your Company has been a very happy one, because when I approached you for assistance in the most difficult times, and if it was in the power of your Company to serve us, you did without hesitation, and for this I am most grateful.

I would appreciate if you would pass on to your staff my sentiments and anything that can be done to assist [REDACTED], who is replacing me, it would be greatly appreciated.

Very truly yours

(Signed) [REDACTED]

For this same kind of helpful action call our nearest plant or office

DETROIT STEEL CORPORATION

PRODUCERS OF

Coke • Coal Chemicals • Pig Iron • Ingots
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DETROIT PLANT, 13770 Joy Road, Webster 3-5866, Detroit 28, Mich.

EASTERN PLANT, 2061 State Street, State 7-5781, Hamden (New Haven 7), Conn.

MIDWEST PLANT, 1601 South Wolcott Ave., Canal 6-2442, Chicago 8, Ill.

OFFICES

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DAYTON, OHIO, 120 W. Second Street, Michigan 8581
DETROIT 28, MICH., 13770 Joy Road, Webster 3-5866
GRAND RAPIDS 2, MICH., 326 Koeler Bldg., Glendale 6-9569
INDIANAPOLIS 4, IND., 1509 Fletcher Trust Bldg., Franklin 2333
JACKSON 10, MICHIGAN, 801 Reynolds Bldg., Jackson 4-6189

MILWAUKEE 10, WIS., 4622 W. Center St., HI Map 2-1049
NEW YORK 19, N. Y., 250 West 57th St., Columbus 5-4870
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July 6, 1953



Midyear Inventory

Midyear of 1953 finds the United States in a peculiar condition. Its domestic economy is in far better shape than anybody had expected. Its relations with foreign nations—allies as well as foes—are bad.

At home industrial activity continued at a high rate throughout the first half, which fact coupled with increased capacity, is bringing a better balance between supply and demand in most materials and products. Employment is at a new high level. The threat of inflation, which was imminent a year ago, has been checked.

In contrast to these satisfactory aspects of our economy is a rather discouraging fiscal situation. In the fiscal year which ended last Tuesday, our federal government spent \$74,607,000,000, although its income was only \$65,218,000,000. The red ink of \$9,389,000,000 is more than was expected. In fact, although the income was the greatest in the nation's history, it fell \$3.5 billion short of what former President Truman had expected. Expenditures were \$14 billion more than he had predicted.

Much of this \$9 billion deficit is attributable to defense and foreign aid programs developed since the end of World War II. Some of the billions we have spent for these activities have been wisely spent but others—to an extent that never will be known—have been wasted. In some instances our largess actually worked to our disadvantage.

And now, let's try to imagine what a similar midyear inventory of the Soviet Union might reveal. Its domestic economy probably is fairly satisfactory from the standpoint of production. Its employment is high. Unfortunately, however, the productive activity yields only scant returns that can be devoted to improving the standard of living of the people.

Russia's foreign relations are deteriorating. Her hold on satellite peoples is threatened seriously. Her internal economic and political difficulties may be much more severe than outsiders think.

In view of the rapidly changing situation in the Communist-dominated world, would it not be wise to keep our foreign policy as fluid as possible? Why not place our foreign aid on an almost day-to-day basis? Why waste more billions needlessly?

E. L. Shaner

EDITOR-IN-CHIEF

CHECK THIS POTENTIAL: According to present indications, the United States will use more die castings in 1953 than in any previous year. It is estimated (p. 106) that produc-

tion of zinc die castings this year will total 276,000 tons and that of aluminum die castings will be 109,000 tons.

An analysis of shipments of a typical die

casting manufacturer shows that about 43 per cent goes to the automotive industry, 21 per cent to national defense, 14 per cent to household appliances and the remaining 22 per cent to diversified consumers.

This diversity is important because it affords a broad opportunity for market development. For instance, last year's automobile had in it 40 to 60 pounds of zinc die castings and 6 to 8 pounds of aluminum die castings. Its 1953 successor has about the same poundage of zinc die castings and 20 pounds of aluminum die castings. Every manufacturer should determine definitely whether or not he is utilizing the full potential of die castings in his products.

* * *

OFF SEASONAL PEAKS: For two consecutive weeks electric power output, as reported by the Edison Electric Institute (p. 81), has established new all-time highs. The totals of 8446 and 8329 million kilowatt-hours, respectively, exceed those of comparable weeks a year ago by 15 per cent.

That new peaks in the consumption of electricity should be recorded in early summer weeks is unusual. For many years the weeks of heaviest power output came in early winter. It was not uncommon for the peak of consumption of electricity to fall on the Friday preceding Christmas. That meant that the percentage of electricity consumed for lighting and for transporting Christmas shoppers, placed on top of a heavy demand for commercial and industrial operation, was enough to establish new records.

This year's peaks in late June reflect the leverage of relatively new users of electricity—television, air conditioners, etc. These and others can be counted upon to change the seasonal pattern of electric power demand appreciably.

* * *

KING COAL IS IN LUCK: Before dismissing the subject of new records of electric power output in summertime, it may be well to note that the seasonal shift in demand for electricity is of more than passing interest to the bituminous coal industry. As a result of the increased use of electricity and below-normal stocks of coal in public utility plants (p. 81), revenue freight car loadings last week were up 7015 cars over the previous week and coal production increased by 525,000 net tons.

This, of course, is a short-term reaction, but

there is reason to believe that in the long run the development of new uses of electricity may go a long way toward lifting the coal industry out of its present low state. There are enthusiasts who say that the trend is toward the heating of homes by electricity. The markets for many popular electrical household appliances are far from saturated. King Coal's stake in market development by the electric public utilities is tremendous.

* * *

WAR — ECONOMIC WASTE:

Every now and then an industrialist voices his opinion on a subject which the official spokesmen of the government ignore or soft pedal. A case in point is National Steel's Ernest T. Weir, who in a booklet (p. 73) "Notes on the Foreign Situation Based on a Trip Abroad," warns that we cannot continue indefinitely to devote a large proportion of our wealth and productive capacity to military purposes. . . . "Some people think we must have a war economy to sustain employment. . . . War production is economic waste. Progress is not built on waste. . . . We cannot go it alone. We must treat our allies as partners and do our part to negotiate with Russia."

The big point: War really is economic waste!

* * *

REFORMS ARE OVERDUE:

New leadership in the Federal Trade Commission is determined to build up good will for that body among businessmen. Chairman Edward F. Howrey (p. 70) believes FTC can be a more beneficial force in American industry by diminishing its prosecuting role and adopting instead a policy of frank discussion with the idea of advising businessmen beforehand as to whether proposed actions are permissible.

At the same time Attorney General Herbert Brownell Jr. is appointing a group of lawyers and economists to make a thorough study of antitrust laws and to recommend ways of modernizing and strengthening them in accordance with "what is best for the American economy."

Both of these proposed actions are reforms that are long overdue. Both have been attempted on previous occasions but with limited, if any, success. Industry prays for better results this time.



(Photograph Courtesy Canadian National Railways)

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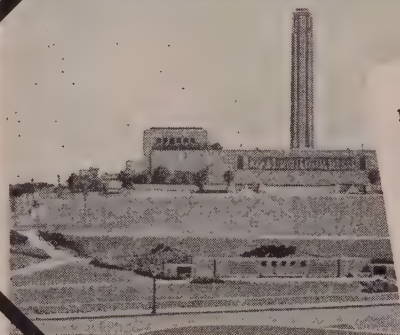
City Hall, St. Louis, Missouri



Buckingham Memorial Fountain, Chicago, Illinois



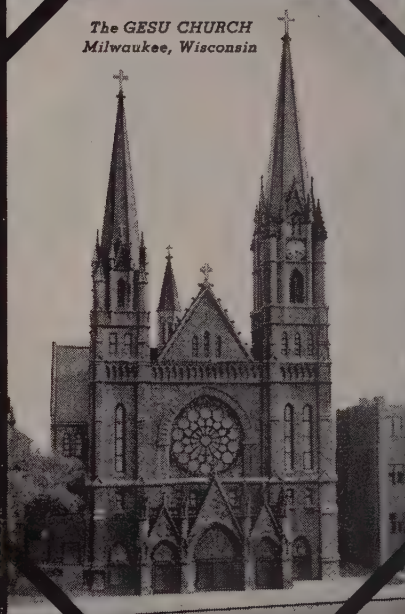
Liberty Memorial, Kansas City, Missouri



Air View of City, St. Paul, Minn.

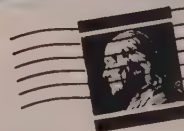


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STEEL

COMPONENTS: Inventory and Delivery

QUARTERLY
SURVEY

The Outlook:

BETTER—Belting, belt drives; cylinders, air, hydraulic; die castings; malleable castings; gears; rubber goods, mechanical; springs, wire shapes; weldments

WORSE—Nonferrous castings and hose couplings

Buyers Effect Voluntary Inventory Control

COMPONENTS BUYERS at mid-year are assuming control of their inventories.

Deliveries on all but six parts show definite improvement.

Some purchasers have increased their inventories, especially of less expensive items; others voluntarily have reduced their stocks, particularly of costlier goods.

Those are highlights of STEEL's quarterly survey of the inventory-delivery position of components makers and users.

His Majesty — The purchasing agent is finally coming into his own. He is effecting control of his sources of supply. Some purchasers either do not realize that a change has occurred or are unable to take advantage of the improvement; only 88 per cent of the respondents believe their general inventory situation is better.

The change for the better, however, is reflected in their increased optimism concerning the future. Improvement in the future inventory and delivery situation is foreseen by 88 per cent, also.

Deliveries have improved over the past three months, the survey shows, on all but bearings, gray iron castings, nonferrous castings,

hose couplings, fasteners and forgings (see the detailed breakdown on p. 64). But on all of those six, except nonferrous castings and hose couplings, some increased control on inventories has been possible, indicating that the slower shipments have not been disastrous.

Stock Situation — The current pattern on inventories indicates that buyers are at last controlling their supplies of parts on hand, even for four of the six slow-delivery items listed above. Some purchasing agents are trying to control their stocks by cutting down on more expensive items such as electrical equipment and motors. They are willing to carry higher inventories of lower cost items such as stampings, springs and rubber goods.

In general, inventories are moving in from both ends toward the middle, or 30-60 day group. Small inventories have been enlarged and large inventories reduced. Most respondents to the survey believe the 30-60 day category for most items is an ideal position.

Heartening — The improvement in the inventory-delivery situation for electrical equipment and mo-

tors is especially encouraging and comes about despite the continuing tightness in silicon steel sheet supplies and high appliance production. There's still room for improvement in that category. At least one buyer comments: "I wanted my inventories of motors to drop a little, but some of the decline came about because I couldn't get enough and had to dig into my stocks."

There's actually room for some improvement everywhere in parts-buying and stocking. That's indicated by the fact that 59 per cent of the respondents to the survey say they continue to be sold just as much as a year ago on the basis of prompt delivery.

Irregular Sources — But better deliveries have lessened the demand from foreign sources. No irregular sources this quarter are reported being used. On the other hand, U. S. sales of American components abroad, especially of electrical equipment and motors, have dropped. That factor partly accounts for domestic improvements.

Air and hydraulic cylinders and weldments show the greatest increases in inventories. In both instances, the majority group hold-

ings have risen from the 10-30 day category to the 30-60 day group.

Outlook—The future problem, as stated by some respondents, may be stability of demand. Generally

a fair degree of optimism prevails. Cited are the high rate of liquid savings and the high income of consumers.

According to the Federal Re-

serve Bank, liquid savings increased at a faster rate in 1952 than in recent years and in early 1953 income was considerably above comparable 1952 levels.

Latest Components Picture as Seen by STEEL's Quarterly Survey

(Figures are percentages of those replying to the questionnaire)

COMPONENTS	INVENTORY POSITION					BEST DELIVERY				
	Under 10 days	10-30 days	30-60 days	60-90 days	3-6 mos.	Under 10 days	10-30 days	30-60 days	60-90 days	3-6 mos.
Antifriction bearings (This quarter) . . .	3	24	38	28	7	11	30	26	18	15
(Last quarter) . . .	14	12	53	12	9	20	29	21	18	12
Belting, belt drives	9	43	35	13	..	50	29	21	..	..
	21	26	34	6	13	42	32	22	4	..
Castings, die . . . . .	..	23	53	24	..	..	40	27	33	..
	..	10	59	17	14	4	15	59	22	..
Castings, gray iron	3	30	54	13	..	3	66	24	7	..
	..	34	43	16	7	25	42	25	5	3
Castings, malleable	4	16	64	16	..	..	42	37	17	4
	3	15	46	26	10	..	27	48	20	5
Castings, nonferrous	7	40	33	20	..	14	43	36	7	..
	9	25	50	14	2	24	43	29	2	2
Castings, steel	5	32	37	26	..	6	22	44	11	17
	10	12	46	20	12	3	21	45	18	13
Couplings, hose	9	46	36	9	..	25	34	33	8	..
	10	41	28	7	14	27	46	27	..	..
Cylinders, air, hydraulic . . . . .	..	36	37	18	9	25	38	37	..	..
	17	35	13	13	22	8	35	38	11	8
Electrical Equipment	19	25	44	12	..	13	50	31	6	..
	4	27	41	18	10	13	40	30	15	2
Electric motors (fractional)	11	22	39	28	..	19	25	44	6	6
	2	25	35	19	19	15	33	26	18	8
Electric motors (1-5 hp)	19	44	12	19	6	24	35	29	6	6
	7	29	32	18	14	25	25	21	16	13
Electric motors (over 5 hp)	25	42	17	..	16	8	38	31	15	8
	12	27	27	12	22	11	32	32	18	7
Fasteners . . . . .	..	23	51	20	6	10	42	39	9	..
	3	14	53	16	14	20	35	31	11	3
Forgings	4	28	40	24	4	..	20	40	28	12
	2	16	43	31	8	..	23	38	13	26
Gears	10	25	25	30	10	5	32	26	32	5
	2	9	40	33	16	9	18	30	25	18
Rubber goods, mechanical	8	44	32	12	4	13	43	35	9	..
	4	26	48	18	4	5	45	48	2	..
Screw machine products	3	24	39	24	10	3	40	34	18	5
	6	23	33	26	12	9	32	38	15	6
Springs, wire shapes . . . . .	..	15	46	30	9	3	39	42	16	..
	4	17	47	19	13	6	30	46	18	..
Stampings . . . . .	..	24	57	19	..	5	16	47	21	11
	..	29	36	29	6	12	12	47	23	6
Weldments . . . . .	..	30	60	10	..	22	34	22	22	..
	25	25	38	6	6	12	41	23	12	12

Hydraulic System Whirs Into Engine Starting Picture

Civilian and military experts get a close look at simplified Hydrotor fluid motor unit. Brings big diesels to life in even the coldest weather

A PRACTICAL system for hydraulically starting internal combustion engines, for years an elusive goal of automotive engineers, was demonstrated last week in Cleveland.

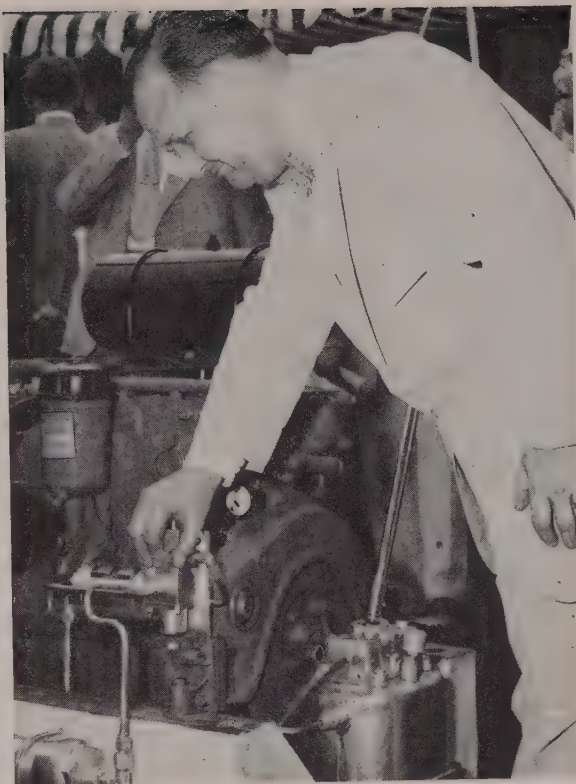
Representatives of diesel and gasoline engine interests, both civilian and military, saw the Hydrotor starting system, developed by Hydraulic Systems Inc. The device covers a locked torque range from 13½ pound-feet to 215 pound-feet. Full scale production is now under way at Hydramotive Inc., wholly-owned subsidiary of Fanner Metal Products Co., Cleveland.

How It Works—Heart of the system is the hydraulic cranking motor itself. Actuated by a fluid pressure charge from the accumulator, this axial piston, cylinder-driven wobble-plate fluid motor meshes the automatic Bendix drive which in turn cranks the engine through its ring gear. All this takes place the instant a plunger-type valve is depressed by the operator.

Five components make up the system which completely replaces the battery-starter motor arrangement for smaller engines and the gasoline engine starters for big diesels. Pressure is built up by a double-acting pump, either hand operated or by engine take-off. This pressure is stored in a piston-type accumulator, one of which retained its charge for three years in test. Remaining components are the motor itself, control valve and a fluid storage tank of about one gallon capacity.

Interest High—Big immediate users are tractor and heavy equip-

A. C. Jenny, vice president of Hydramotive and designer of the Hydrotor fluid motor, points out the heart of his new hydraulic engine-starting system



ment builders. Oliver Corp., Cleveland, plans to make the equipment standard on all its models. Marine engine men also expressed keen interest in battery-less starting, especially for small craft.

Army Engineers originally became interested in the system as a solution to the cold weather starting problems in the Arctic. With the assistance of Canadian army engineers, tests were conducted over a year ago at Ft. Churchill, Man. The gasoline auxiliary starting motor was removed from a big Caterpillar bulldozer and a Hydrotor system installed. The big diesel was started in temperatures as low as -64° F in about 5 seconds. Normal starting time, using preheaters, etc., averages in the neighborhood of 40 minutes. In a life test, one unit was started 73,000 times with no sign of wear.

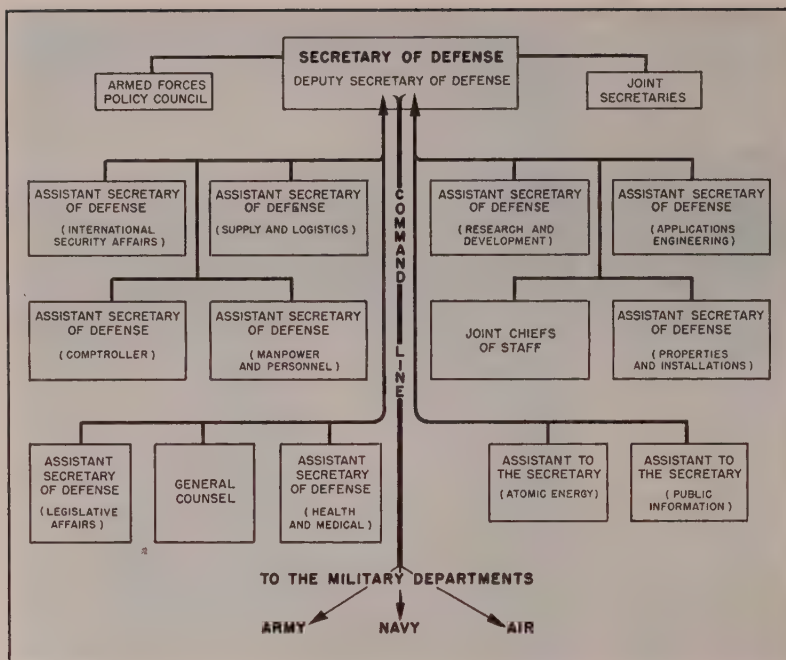
Constant Power—"Beauty of the Hydrotor," pointed out W. W. Lytle, Hydramotive's president, "is its constant power characteristic. No matter what the temperature, if the accumulator is fully charged starting torque will always be sufficient to crank the motor." Looking to the future, Mr. Lytle be-

lieves that the Hydrotor starter, used either as a self-generating unit from the engine or charged with a tiny electric motor driven off a battery, could conceivably work down into the auto sizes.

Hydraulic starting is not a new idea. One firm in England manufactures a rack and pinion type of starter that works right on the crankshaft. Chief objection to this design, however, is the necessity for building it right into the engine block.

European Know-How Imported

Advances in European boiler technology will be imported to produce what is expected to be more economical electric power plants in this country. Combustion Engineering Inc., New York, says it has signed an agreement with Sulzer Bros., Winterthur, Switzerland, to produce a "once-through" boiler unit, in which water is completely converted to steam in a continuous process. Application of the Sulzer principle in U. S. power plants will raise the steam pressure in boilers, thereby lowering the amount of coal needed.



The organization chart becomes more simplified as . . .

Defense Department Reorganizes

For metalworking, it means a simplified echelon of new officials with whom to do business. Nine assistant secretaries replace myriad of boards, committees

METALWORKING EXECUTIVES, who in their business dealings with the Defense department have been nearly lost in the maze of bureaus, committees and boards, will find the above chart of value in future dealings with the department.

It represents President Eisenhower's reorganization plan No. 6 now in effect in the Defense department. Its main effect is to eliminate several overlapping, cumbersome or outdated committees and boards and pinpoint in a small group of persons the responsibilities formerly spread out among many.

What It Means—To metalworking men, it means they have a whole new echelon of executives with which to familiarize themselves if they want to do defense work. But it's a fairly simple echelon. There are now nine assistant secretaries, each with fairly definite limits, as compared with three before. Those three—comptroller, manpower and personnel,

and international security affairs—are basically unchanged.

The other six will be in charge of the following:

Supply & Logistics—Former Munitions Board functions; cataloging and standardization; transportation and traffic management.

Research & Development—Duties of former Research & Development Board.

Applications Engineering—Weapons system evaluation; guided missiles; chemical and biological warfare.

Facilities & Installations—Duties of former director of installations; public works construction; real property management; reserve plants and facilities; family housing.

Legislative Affairs—Congressional relations and legislative matters.

Health & Medicine—Duties of former chairman of Armed Forces Medical Policy Council.

Further Changes—In addition there will be a general counsel with

assistant secretary rank who will be chief legal officer of the department, and two assistants to the secretary. The first will have charge of liaison between the department and the Atomic Energy Commission, and the second will be in charge of public information.

Cutting Surplus Inventory

"Aircraft Metals Stock List, 1953" is the title of a catalog of almost 2000 types and sizes of metals required for modern airframe production. It was prepared for warehouses as part of an effort to reduce the number of metal items which must be stocked for the aircraft industry. Included are aluminum alloys, copper alloys, magnesium alloys, carbon and alloy steels, stainless steels and titanium. Copies can be obtained at 50 cents from the National Standards Association, 527 Washington Loan & Trust Building, Washington 4, D. C., with lower prices on quantities in excess of four copies.

Containers: Good Volume Ahead

The container and packaging industry will do a good business through the third quarter of 1953, predicts the National Production Authority. The total volume in 1953 will equal or rise slightly over the industry's output last year, since first-quarter production was considerably over that of the same 1952 months.

More Power to Nickel Plant

A 230,000-volt line to bring electricity to the ferronickel smelter of M. A. Hanna Co., near Roseburg, Oreg., and other consumers nearby, has been approved by the Department of Interior. The California-Oregon Power Co. and the Bonneville Power Administration will jointly construct the line.

New Atomic Division for Kaiser

Kaiser Engineers Division of Henry J. Kaiser Co., Oakland, Calif., has established an Atomic Energy Division to explore various approaches to industrial uses of atomic energy, including power and the utilization of radioactive by-products.

Push Button Weather

Developments in air conditioning pumps should put them in the modest budget bracket

PUSH BUTTON weather control may soon be within reach of the weltering home owner.

Clarence H. Linder, vice president of General Electric Co., Schenectady, N. Y., predicts that 100,000 heat pumps will be sold annually by 1960 at an average installed price of less than \$2000. Today's prices range from about \$3500 to \$4500.

No Fuel—Eliminating ashes and dirt, heat pumps use electricity to warm houses in winter and cool them in summer. Engineers have studied means of producing such pumps for 20 years, but serious marketing has been confined to the past two years.

"From the initial success of the heat pump, we see in it a key to the all-electric home," Mr. Linder says. One setting of a thermostat will provide uniform temperature throughout the house in all seasons.

High Potential—Mr. Linder believes air conditioning can become one of America's fastest growing industries. Sales of room units alone could rise from less than 500,000 units last year to 2 million units annually by 1960. The GE vice president adds that a recent prediction of 60,000 homes equipped with complete air conditioning this year, as compared with 25,000 installed systems last year, is more nearly a minimum figure.

New Plating Gages Ordered

A new type of gage for measuring tin plate thickness will be produced by Applied Research Laboratories, Glendale, Calif., for Jones & Laughlin Steel Corp., Pittsburgh. The new gage—engineered at J & L—uses the x-ray principle for measuring the thickness of tin on steel to accuracies of 1-millionth of an inch, while the tin plate travels at high speeds as a continuous sheet on the plating production line.

A contract between the two firms calls for delivery of three such



Bound for Bodies

First shipment of steel sheet leaves Pittsburgh Steel Co.'s new 66-inch hot-rolled sheet mill at Allentown, Pa., bound for Chrysler Motors Corp. Each package contains three coils, enough steel to build 27 automobile bodies

measuring devices for installation in a J & L tin plate mill in early 1954. Applied Laboratories says that the new type of gage may be used to solve many measurement problems in the production of tin cans, aluminum foil and other like items.

Equipment Policy Study Planned

Illinois Institute of Technology, in co-operation with the Machinery & Allied Products Institute, next fall will set up a national center to conduct education and research in the methods of industrial equipment acquisition and replacement. To be known as the National Center of Education & Research in Dynamic Equipment Policy, it will be a part of the Department of Business & Economics at the IIT campus on Chicago's near south side.

The center will have two basic objectives: The wide dissemination of information as to enlightened equipment policy; and sustained study of improved techniques and continued analysis of the problems and practices of business in this field. MAPI will finance the center during its initial years. Illinois Tech will name a director soon.

Overtime Mounts

Overtime work continues to be widespread in manufacturing industries. The Bureau of Labor Statistics says the average factory production worker averaged 40.6 hours each week in mid-May. This equals the postwar peak for the month reached in 1951.

Average work-weeks of 41 to 43 hours in mid-May were reported by such industry groups as machinery, primary and fabricated metals, chemicals and transportation equipment. This upswing reflects recovery of consumer goods industries from slackened activity in steel and petroleum production last year.

Hourly earnings for factory production workers averaged \$1.75 in mid-May including overtime pay, a rise of ten cents from figures one year earlier. Averages ranged between \$2.00 and \$2.19 for workers in the transportation equipment and primary metals industry groups.

Electrical Union Maps Strategy

White collar workers and other groups of nonproduction employees will be primary targets in future drives to increase union membership in the electrical manufacturing industry, says the CIO's International Union of Electrical, Radio & Machine Workers. A long-range organizing program of the industry's 250,000 nonproduction workers was endorsed by IUE-CIO delegates of white collar and salaried workers at a two-day meeting in Washington.

Among the major "injustices" emphasized at the meeting were those resulting from merit systems. Delegates said many nonproduction workers are "victimized" by merit systems, since the "whim" of the employer determines which worker merits an increase in salary.

Midvale Co. Grants Wage Boost

Midvale Co., Nicetown and Philadelphia, Pa., granted its hourly and weekly salary employees a wage increase of approximately 11 cents per hour in a contract with the Federal Labor Union Local No. 18887, an AFL affiliate.

More Domestic Manganese

Research methods for recovering critically-needed metal pass first tests

FIRST GOALS have been reached in the Interior department's drive to recover manganese from large reserves of low-grade ore in the West. Methods of obtaining the metal are under study because the United States is dependent on foreign imports for 90 per cent of its requirements.

Hard Task—Processes developed during two years of research in laboratories of the Bureau of Mines at Salt Lake City, Utah, and Tucson, Ariz., have been proved in part by 18 months of continuous pilot plant operation at Boulder City, Nev. The studies are aimed at developing better and cheaper methods for recovering manganese from steel furnace slags and low-grade ore deposits.

Flotation and hydrometallurgical pilot plants at Boulder City are developing laboratory procedures devised at Salt Lake City and Tucson for Artillery Peak, Ariz., ores. Estimates are 15 million to 20 million tons of ores at Artillery Peak contain 5 per cent or more manganese. About 3500 tons of this

ore have been mined and tested at Boulder City. Several methods of treatment developed in the laboratory were tested in the pilot plant.

ODM Sets Goal for Structural

The Office of Defense Mobilization is setting an expansion goal for facilities to produce wide-flange structural steel shapes to reach a capacity of 2,850,000 tons annually by July 1, 1955, or about 850,000 tons over capacity available in 1950.

Requests for certificates of necessity for rapid tax amortization have been received to fill about 200,000 tons of the 850,000-ton increase in annual production of the structural shapes.

New Powdered Iron Plant

Republic Steel Corp. says it has perfected a process for making powdered iron and will build a new plant at Toledo, O., to produce the powder on a commercial scale. Construction of the plant, which will have an initial capacity of 50,000 pounds a day, will begin soon and is scheduled to be completed next summer.

The process resulted from Re-

public's search for an economical way of reducing iron ore directly to high purity iron without certain conventional smelting steps. The company is also studying the production, by a variation of the powder process, of sponge iron, and "experiments also show promise of producing nickel and manganese from low grade ores."

Powdered iron production capacity will expand nearly 200 per cent to more than 10 million pounds before the year is out as U. S. and Canadian producers build up new plant space. An industry-wide survey made by the Metal Powder Association shows that about 60 per cent of present iron powder production goes into manufacture of bearings and mechanical parts, about 28 per cent is being used for scarfing and some 10 per cent for electronic applications.

New Rod Mill for AS&W

American Steel & Wire Division of U. S. Steel Corp. will modernize and expand Cleveland facilities. A new rod mill will be built on property at AS&W's Cuyahoga Works. The contract has not been let.

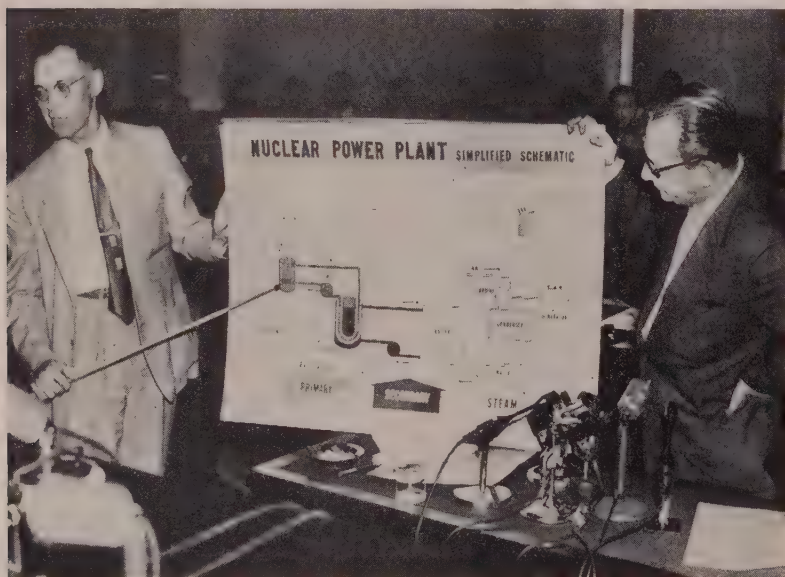
New facilities including the mill, billet storage areas and rod storage areas will have a rated capacity of 450,000 tons annually compared with the present capacity of 313,000 tons a year.

Electronic and automatic controls will be used extensively. Facilities will handle billets weighing 1050 pounds. The mill will send rod speeding to take-up reels at 60 miles an hour.

J&L Expands Tubing Facilities

Jones & Laughlin Steel Corp. will enlarge the capacity of its Electricweld Tube Division plant at Oil City, Pa. The additional facilities, costing about \$500,000, will permit J & L to increase by about 50 per cent its production of special fabricated tubing, including its Perma-Tube line, a plastic coated steel tubing used in the manufacture of television antennas.

Program includes construction of a steel building covering about 13,000 square feet. The new facilities are expected to go into operation in late 1953.



Public Hearings Discuss Atomics for Industry

Gordon Dean, right, former chairman, Atomic Energy Commission, and Lawrence Hafstad, director of the Reactor Development Division appear before the Joint Congressional Committee on Atomic Energy to discuss use of atomic power

Hurried Transition

Thanks to Congress' slow footwork, the jump from CMP to DMS was a little unsteady

THE TRANSITION from the Controlled Materials Plan to the Defense Materials System was made on July 1 amid a last-minute flurry of confusion.

The well-laid plans for a smooth shift went awry a little because Congress was so slow in passing the extension to the economic controls bill. It finally sent the measure to the White House on the evening of June 30, just a few hours before the old Defense Production Act was due to expire.

Provisions—The new controls bill will be in effect until June 30, 1955. No decision was reached on the controversial Small Business Administration, the issue which has caused the delay in passing the complete measure. So, the old Small Defense Plants Administration will continue in effect until July 31, by which time Senate and House members hope to make up their minds about some kind of small business agency.

The new controls bill gives authority for DMS instead of CMP. The newer system, with less rigid controls to channel steel, copper and aluminum to military and atomic uses only, is now in effect. No controls now exist for civilian uses of those three metals.

Change in Plans—The slowness of Congressional action on the new controls has contributed to a one-month extension in the life of NPA, to July 31. Originally, an organization in the Commerce department, tentatively named Business Services Administration, was to take over remaining NPA functions on July 1. NPA will hang on for 30 days more to let BSA or a similar outfit get organized.

But NPA is a shadow of its former self. It had about 1200 employees on June 30. It has about 400 now, plus 50 industry men serving without compensation.

Bearings Cartel Broken Up

In a move to eliminate restraints on competition in the bearings industry, the Department of Justice



NPA Division Director

A new Washington appointee is Perrin G. March, president of Cincinnati Shaper Co., Cincinnati. He is now director of the Metalworking Equipment Division of the National Production Authority replacing Earl Leeds

entered in the Federal Court in Cleveland an antitrust consent judgment against the Norma-Hoffmann Bearings Corp., Stamford, Conn., providing for termination of the cartel agreement with the Hoffmann Mfg. Co. Ltd., Chelmsford, England, which was entered into in 1922.

Stanley N. Barnes, assistant attorney general in charge of the Antitrust Division, said the judgment "should be of material assistance in the promotion of competition in the manufacture and sale of bearings."

Higher Postal Rates Asked

The postal rate increases requested by Postmaster General Summerfield would enlarge Post Office revenue by \$240 million annually and would reduce the department's prospective fiscal 1954 deficit of \$594 million.

He recommended a one-cent increase in rates for nonlocal first class mail (leaving the local rate at 3 cents), all air mail and on the first two ounces of third class mail. He recommended a 42 per cent increase—in two installments—for certain classes of second class mail and substitution of a bulk rate of 12 cents a pound for

third class mail instead of the present 10 and 14 cents. No change would be made in the 2 cent rate for postcards.

Under present law, the second class rate is scheduled to go up 10 per cent on Apr. 1, 1954. Mr. Summerfield proposes, instead, a 25 per cent increase, effective Oct. 1, 1953, and an additional 17 per cent increase effective on July 1, 1954.

These increases would not apply to publications delivered within the county of publication or to religious, educational, scientific, philanthropic, agricultural, labor or fraternal nonprofit publications.

CHECKLIST ON CONTROLS

Materials Orders

RAILROAD TRANSPORTATION EQUIPMENT—Revocation on June 26, 1953, of NPA Order M-95, effective July 1, relieves producers of railroad transportation equipment of quarterly reports of production schedules and monthly reports of equipment shipped.

ELECTRIC UTILITIES—NPA revoked on June 29, 1953, Order M-50 providing for priorities assistance for electric utilities. Revocation, which was effective July 1, does not affect orders for nickel-bearing stainless steel placed before July 1 and calling for delivery in third quarter.

OIL COUNTRY GOODS—NPA revoked on June 29, 1953, Orders M-46, M-46A and M-46B providing for priorities assistance to gas and oil industries in the U. S. and foreign countries. Revocation, which was effective July 1, does not affect orders for nickel-bearing stainless steel placed before July 1 and calling for delivery in third quarter.

Defense Materials System

OIL, GAS PRODUCERS, ELEC. UTILITIES—Amendments of June 29, 1953, of Direction 1 to DMS Regulation 1 and Direction 1 to DMS Regulation 2, effective that date, allow petroleum and gas operators and electric utilities to apply for permission to place authorized controlled materials orders for nickel-bearing stainless steel after June 30. Under these amendments, such industries cannot self-authorize orders for third-quarter delivery of nickel-bearing stainless steel as they could under the Controlled Materials Plan. They must obtain specific authorization from the Department of Interior before placing priority orders.

Appointment in Washington

Donald R. Belcher, financial consultant to the House Appropriations Committee and formerly treasurer, American Telephone & Telegraph Co., was named assistant director, Bureau of the Budget.

Windows of Washington

By E. C. KREUTZBERG Washington Editor

The Federal Trade Commission hopes to steer more businessmen away from violations, prosecute fewer companies. New appointees strive to regain industry's good will

THE FEDERAL TRADE Commission must do a big job of building up good will if it is to replace the present hostile and suspicious attitude of businessmen with one of confidence and friendly co-operation. That's the belief of Edward F. Howrey, the commission's chairman. He believes the commission can be a more beneficial force in American industry by diminishing its prosecuting role and adopting instead a policy of frank discussion with the aim of advising businessmen beforehand as to whether proposed acts are permissible.

To this end he has appointed Fitzhugh Green as executive assistant for public affairs. Mr. Green's job is to "sell" the commission—to build up trust and establish friendly relations, to set up the commission alongside the Commerce department as the friend of business in Washington. He is to major on promoting the commission's industrial relations. He also will have charge of the commission's liaison with Congress.

Another appointment in the same vein is that of David C. Murchison as legal adviser and assistant to Mr. Howrey. He will have a lot to do with determining content of commission utterances. Mr. Murchison was associate general counsel of the Small Defense Plants Administration and, before that, legal assistant to former Undersecretary of the Army Tracy S. Voorhees.

Antitrust Laws Studied . . .

A thoroughgoing study of the antitrust laws, so that they may be revised realistically to meet present-day economic and business conditions, has been ordered by the Eisenhower administration. The study is to be conducted by a group of lawyers and economists "who will be guided by the broadest viewpoint of what is best for the American economy." The

make-up of the study group is to be announced in August at the Boston meeting of the American Bar Association.

This is revealed by Attorney General Herbert Brownell Jr.

"I believe," he said, "that the Attorney General's National Committee to study the antitrust laws will provide an important instrument to prepare the way for modernizing and strengthening our laws to preserve American free enterprise against monopoly and unfair competition." Co-operating with the large study committee, he added, will be a smaller working committee "whose assignment will be to draft, possibly for congressional approval, an agreeable statement of national antitrust policy that will confirm the principles of private competitive enterprise." Such a statement, he said, must "combine certainty with flexibility," to the end that antitrust regulation will be "in keeping with a middle-of-the-road political philosophy and aimed primarily at the elimination of predatory practices."

Authority Extended . . .

The House Armed Services Committee approved H.R. 5508, to extend for one year the government's authority to buy, build, or lease defense plants and take other necessary steps to expedite the production of military goods. The bill also authorizes spending \$400,000 to buy and store machine tools.

Atom for Industry Postponed . . .

Revision of existing atomic energy legislation to permit private interests to build and operate atomic power plants and deal in resulting fissionable by-products will be postponed until next year as a result of a request by the administration for "more time" to formulate its legislative recommendations.



"Ammunition Twins" Retire

Retiring July 31 are William F. Stevenson, civilian chief of the Industrial Ammunition Branch, Army Ordnance, and Brig. Gen. Merle H. Davis, chief of the branch, who supervised the switch from brass to steel cartridge cases and the application of powder metallurgy to ordnance items

Defense Producers Inspected . . .

The Senate approved and sent to the White House for the President's signature H.R. 2313, to extend for "six months beyond the end of the present emergency" the authority of the Defense department to inspect the records of defense contractors.

Tax Changes Proposed . . .

H.R. 5702, by Representative Hiestand (Rep., Calif.), now before the Ways & Means Committee, would allow the taxpayer to determine the period of useful life of property in computing deductions for depreciation under the income-tax laws.

H.R. / 5779, by Representative Kersten (Rep., Wis.), would amend the Internal Revenue Code to provide that an individual taxpayer may deduct \$1000 in dividend income received during the taxable year. This bill also is being considered by the House Ways & Means Committee.

NEW BAKER gas-O-matic

... ELECTRIC TRUCK OPERATING ECONOMY
 GAS TRUCK INITIAL COST

uses
40%
 less fuel!



gas-O-matic

is a revolutionary new gasoline-powered fork truck with electric motor drive—designed from engine to drive wheels to incorporate the best features of both gas and electric trucks.

The secret of its outstanding performance and amazing operating economy is the new Baker GAS-O-MATIC transmission system. A specially designed variable voltage generator provides an incredibly smooth *unbroken* acceleration curve—directly controlled by the gas throttle.

ELIMINATION OF CLUTCH cures the biggest maintenance headache of gas-powered trucks.

ELIMINATION OF CLUTCH AND GEAR SHIFT prevents jerky starts and "step-ladder" acceleration.

ELIMINATION OF CONTROLLER AND RESISTANCE BANKS of electric and gas-electric trucks means fewer moving parts and results in less down time and lower maintenance costs.

gas-O-matic

has the smoothest acceleration and best "inching" characteristics of any fork truck, regardless of type of fuel or transmission. It is ideal for ramp work, for tiering, and for long or short haul operations. In fact it will perform almost any fork truck job better and cheaper.

gas-O-matic

will do everything a comparable straight gas truck can do—do most of it better and more economically . . . plus some things that straight gas cannot do.

It will do almost everything a battery-powered fork truck can do—and some of it better . . . plus a few things that battery-power cannot do!

—Yet it costs little more* than a straight gas truck of the same capacity, and only about half as much as a battery-powered electric with charger and two batteries!

* gas-O-matic model illustrated, 4,000 lb. capacity costs only **\$4895.00**



write for descriptive Bulletin No. 1344

THE BAKER-RAULANG COMPANY
 1259 WEST 80th STREET • CLEVELAND 2, OHIO

The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota
Material Handling and Construction Equipment

Baker

industrial trucks

Diameters and radii of railroad car wheel axle ground on
CINCINNATI FILMATIC 16" x 96" Plain Grinding Machine.

**Reducing the
Cost of Car
Wheel Axles**
with



Cincinnati Filmatic Plain Grinders

The close-up illustration above gives you an excellent indication of the performance which you can expect from CINCINNATI FILMATIC 14" and 16" Plain Grinding Machines. The part is a railroad car wheel axle. Several diameters are ground to accurate dimensions, and at the same time, the adjoining radii are also ground. The wheel is trued to the desired radius by means of a profile wheel truing unit with interchangeable cams.

(Extra equipment.) FILMATIC grinding wheel spindle bearings; simple table traverse drive with electronic rate control; automatic pressure way lubrication, and conveniently located mechanical and electrical operating elements contribute largely to the machine's dependable performance.

CINCINNATI FILMATIC 14" and 16" Plain Grinding Machines are not limited to grinding car wheel axles; they handle plain precision grinding operations on many railroad parts. Complete information may be obtained by writing for publication No. G-607. Brief data in Sweet's Machine Tool Catalog.

CINCINNATI GRINDERS INCORPORATED
CINCINNATI 9, OHIO

CINCINNATI

CENTERTYPE GRINDING MACHINES
CENTERLESS GRINDING MACHINES
CENTERLESS LAPPING MACHINES
MICRO-CENTRIC GRINDING MACHINES

FILMATIC grinding wheel spindle bearings are self-adjusting.



Electronic selection of table traverse rates.



CINCINNATI FILMATIC 16" x 36" Plain Grinding Machine. Also built in 14" size. Both 14" and 16" machines are built in 36", 48", 72", 96", 120", 144" and 168" lengths.



U.K. Steel Supply Improves Steadily

Record pig iron and steel production registered in May. Heavy plates continue the most serious bottleneck but capacity for rolling them is expanding

STEEL SUPPLY in Great Britain continues to improve — even the coronation didn't hurt May production as expected.

Steel output in May at an annual rate of 18,236,000 tons was the highest ever recorded for that month. The weekly average for May was 350,700 tons of steel. Pig iron production also hit a record rate of 214,700 tons weekly and an annual rate of 11,165,000 tons.

Exports Improve — As a whole British steel users have 50 per cent more inventory now than they had a year ago. Even steel exports are up, despite foreign import restrictions and currency problems, 870,162 tons exported in the first four months of 1953, compared to 848,025 tons exported for the same period in 1952.

Almost the only manufacturers still complaining loudly about lack of steel are shipbuilders and railroad rolling stock producers. They can't get enough heavy plates. Here's one good reason why: Great Britain leads the world in current construction of merchant ships of 1000 gross tons and over with 648 ships under construction. The U. S. and the Netherlands are tied for fourth position each with 82 ships abuilding, reports the Shipbuilders Council of America.

Capacity Grows—To break the heavy plate bottleneck, plant capacity for rolling heavy plates has been constantly increased. Last year's production was 51 per cent above the average for 1937-1938, and 1953 output should be some 200,000 tons more than in 1952.

The Way Toward Peace

"Wrong — terribly wrong" describes Americans who would have the U. S. "go it alone" if necessary in the struggle with Russia says Ernest T. Weir, chairman of National Steel Corp., Pittsburgh.

In a booklet, "Notes on the Foreign Situation Based on a Trip Abroad," Mr. Weir says, "Even the

U. S. cannot continue indefinitely to devote a huge proportion of its wealth and productive capacity to military purposes . . . We have become so accustomed to a war economy that some people think we must have it to sustain employment and production . . . The plain fact is that war production is economic waste. Progress is not built on waste."

Mr. Weir believes in order to find the road to peace, the U. S. must realize that we cannot go it alone, must treat our allies as partners and must do our part to negotiate with Russia.

Copies of Mr. Weir's booklet are available from National Steel Corp., 2800 Grant Bldg., Pittsburgh 19.

Europe's Batterymakers Recover

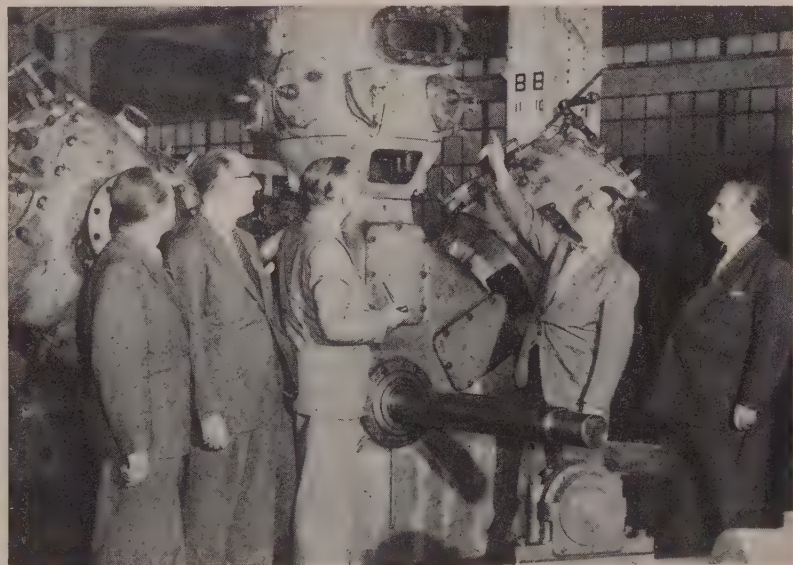
"Phenomenal" improvements have been made in the storage battery industry in Europe since 1950,

says John L. Rupp, vice president of Gould-National Batteries Inc., Trenton, N. J.

Many of the methods and machines of battery plants in Sweden, Belgium, Germany, Switzerland, France and England offer a surprise to those who consider the U. S. as leading in production methods. "Their batteries are good and they are cheap," he said, adding that low wages accounted for the low prices. So vigorous has been the German recovery rate that other nations are expressing fear that the Germans will soon dominate Europe again. Plants which had been as much as 80 per cent destroyed are again in full operation.

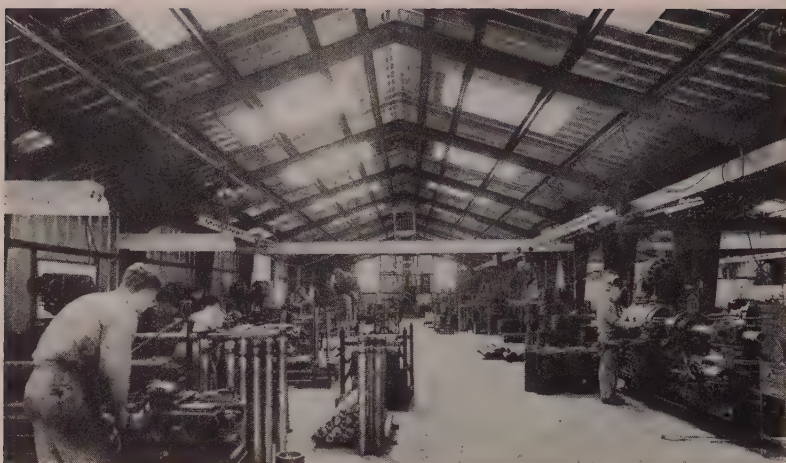
Foreigners' Dollar Assets Grow

Foreign countries raised their gold and dollar assets by about \$750 million through first-quarter transactions with the U. S., says the Office of Business Economics. During the same period last year, foreign countries were forced to draw on gold and dollar reserves by more than \$400 million. The sterling areas got nearly half of the total first quarter gain.



Centennial Sales Conference

Rounding out its 100th year in export trade, Worthington Corp., Harrison, N. J., held an international sales conference for directors and executives of the company's overseas operations. Here H. M. Boteler (second from right) of Worthington's Buffalo Works explains features of an air compressor to (left to right) A. Huber, Austria; J. Maldonado, Spain; C. J. Andriessen, Netherlands, and E. Sell, West Germany, during the course of the conference



Translucent plastic sheet lets daylight into this prefab

Steel Prefabs

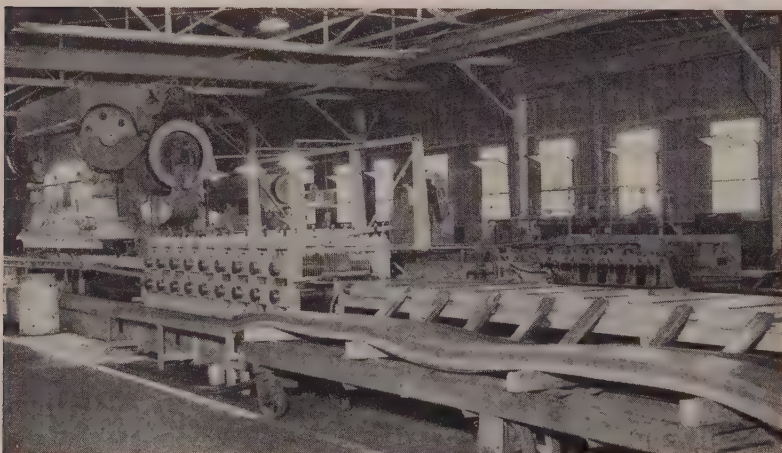
Here To Stay

Prefabricated steel buildings will more than hold their own in competition with "conventional" types of construction, says Butler Mfg. Co., Kansas City, Mo.

EARLY this spring, the garages of the Southeastern Stages bus line in Macon, Ga., were destroyed by a Saturday night fire. By the following Saturday, Southeastern

Stages was doing business as usual in a new 50 by 100 foot building.

In three short months some 500,000 square feet of building space was erected for varied uses at the



Purlin fabricating setup helps make field assembly easy

atomic energy project site near Portsmouth, O.

From the Farm—Supplier of the prefabricated steel buildings in each case was Butler Mfg. Co., Kansas City, Mo., whose slogan "We Can Make That" had carried the company a long way from the galvanized steel stock-watering tanks it started making in 1901.

Sales of steel buildings last year for Butler Mfg. topped the 1945 volume by 500 per cent and the 1950 total by 250 per cent. Most of those sales are handled by a nation-wide organization of more than 200 dealers; supplied by the five Butler Mfg. plants. Actual prefabrication of steel buildings is concentrated in the Richmond, Calif., plant and Galesburg, Ill., plant where a substantial part of 37.7 acres is under roof.

Leading Statement — But ease and speed of erection are not the only factors which leads Butler Mfg. to say: "We are convinced that our buildings are here to stay and will play an important role in filling the building needs of American business."

There's economy: Coca Cola Bottling Co. of Texarkana, Tex., by using Butler buildings for 26,000 sq ft out of 36,000 sq ft, reduced per-square-foot costs of a new bottling plant from \$14.00 to less than \$7.00, saved \$150,000.

Flexibility: Butler has standard rigid frame building designs in widths up to 70 feet; in any desired length, and up to 14 feet in height. With slight modification, dimensions can be varied in any direction.

Mobility: In 1947, Ebasco Services bought a 40 by 100-foot building for use during the construction of the Arapahoe Steam Power Plant at Denver. Later, 80 feet of the building were re-erected at Boulder, Colo., and the remaining 20 feet put into storage. Since then the building has been dismantled, packed up and shipped to new locations four more times—with 100 per cent salvagability except for bolts, washers and weatherproofing compound.

Keystone — The real problem facing Butler Mfg., and the whole prefabricated steel building industry, is whether prefab buildings can be considered "permanent"

construction. Butler believes it found the answer in 1943 with its rigid frame building, in which the exterior columns and roof beams carry the whole of the structural load providing admirable means of attaching craneways, hoists, etc., and leaving the center of the build-

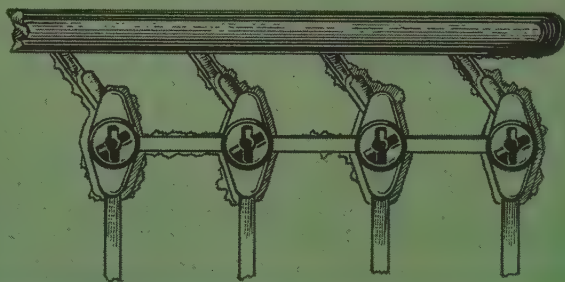
ing and eaves free of supporting columns and trussing.

Has this removed the buildings from the slap-dash wartime building class? "The sales volume of Butler steel buildings has increased nearly 5000 per cent since 1941, and today only a small percentage

of Butler buildings sold are going into military and other governmental use," says Butler Mfg. "Most are sold to industrial, commercial, agricultural and institutional users in free competition with all types of building materials."

Investment Castings:

Their gross sales will pass the \$100-million mark this year. But what effect peacetime will have worries some producers



INVESTMENT CASTINGS will pay about 15 per cent higher dividends in 1953 than last year, and chances are good they will continue climbing.

In a little over a decade, this war baby has grown from nothing to over \$100-million gross sales anticipated this year. The first commercial investment castings for industrial use appeared a little over 13 years ago as the answer to the problem of machining small, intricate parts for war equipment. Now the industry is still deep in production of aircraft parts, but is educating the metalworking industry as to its almost endless uses.

What Is It?—Investment casting process is distinguished from sand casting mainly by the lack of a permanent pattern. In the former process, the pattern is made of wax or polystyrene so that when heat is applied to the mold, the pattern melts and runs out the sprue or is volatilized. Thus, the name "lost wax" is often applied to the process. The pattern also can be made of frozen mercury, which is recoverable.

This industry was built on government contracts, and at present about 70 per cent of the output is going into direct defense work. The extent to which it could grow in a fully peacetime economy is a question mark. Best estimates place the number of investment casters at somewhere over 100,

with about 50 constituting most of the volume and only a baker's dozen being what might be termed large. One producer says that if the defense prop were kicked out from under the industry at least 50 per cent of those members would fold.

Protection — To help guard against such an eventuality, the industry this year formed the Investment Casting Institute which aims to expand the industry and conduct an educational program about what it can and cannot do. K. M. Bartlett, manager, Metallurgical Products Division, Thompson Products Inc., Cleveland, who is the first president of the institute, says it will try to correct misleading impressions about uses and tolerances of precision castings. All investment casters will be eligible for full membership, and their vendors "who can contribute a direct technical service to the industry" may be affiliate members.

Because the process was originally used in industry for small parts, some people think it is good only for castings weighing up to a pound or two. Mr. Bartlett says that castings 15 inches in one dimension and weighing 50 pounds are not only practical but a reality. They simply take larger equipment than most investment casters have available.

Debunked—While these castings

—large or small—to a great extent eliminate further machining processes, Mr. Bartlett believes that too many casters promise tolerances which they cannot maintain. Several of the larger producers will recommend to the institute that tolerance be standardized at plus or minus .005-inch per lineal inch regardless of the casting size.

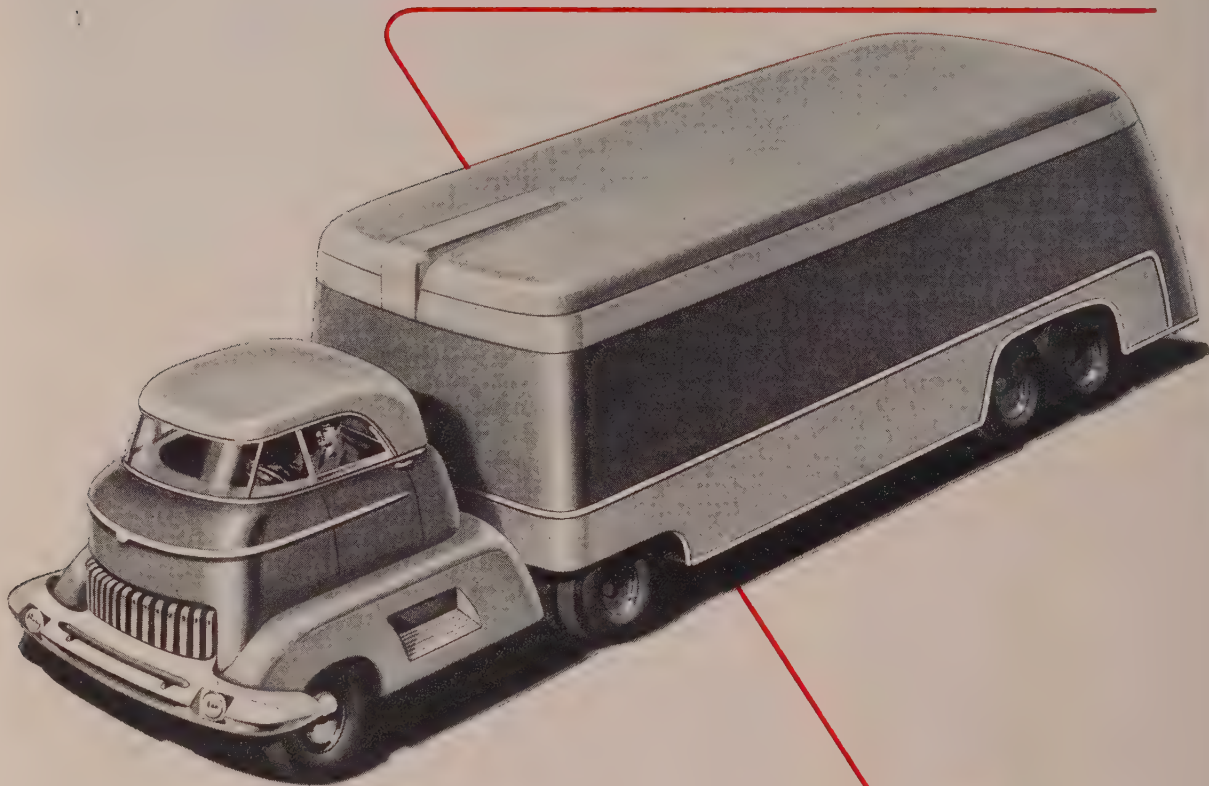
L. W. Millen of Cadmet Corp., Detroit, believes that 95 per cent of the industries in the country could use investment castings, but most of them must be shown how. J. D. Corfield, vice president and secretary of Michigan Steel Casting Co., Detroit, thinks the auto industry will soon be using investment castings in certain auto parts. He points out that already they are finding their way into domestic appliances, such as garbage disposers.

Optimism—Mr. Corfield thinks the industry will continue its rapid growth. Misco Precision Casting Co., division of Michigan Steel Casting, is only 10 years old compared with the 40-year-old parent company. Yet in that time, Misco has grown to be twice the size of its parent. The new plant at Whitehall, Mich., may have to be enlarged 100 per cent within the next 12 months, Mr. Corfield says. Such individual growth bids well for the whole investment castings industry.

Specify



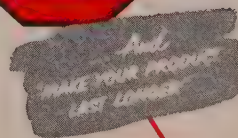
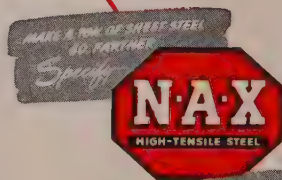
for **Lighter Weight,**
Longer Life and
Operating Economy



N-A-X HIGH-TENSILE, having 50% greater strength than mild carbon steel, permits the use of thinner sections—resulting in lighter weight of products. It is a low-alloy steel—possessing much greater resistance to corrosion than mild carbon steel with either painted or unpainted surfaces. Combined with this characteristic, it has high fatigue and toughness values at normal and sub-zero temperatures, and the abrasion resistance of a medium high carbon steel—resulting in longer life of products.

N-A-X HIGH-TENSILE, with its higher physical properties, can be readily formed into the most difficult stamped shapes, and its response to welding, by any method, is excellent. Due to its inherently fine grain and higher hardness, it can be ground and polished to a high degree of lustre at lower cost than can mild carbon steel.

Savings in vehicle weight, with no loss in structural strength, increase the payload ratio and give greater operating economy when you make it a point to specify N-A-X HIGH-TENSILE steel for your highway equipment.



GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division

Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION



KEEP YOUR **SCRAP** MOVING TO YOUR DEALER

Mirrors of Motordom

Here's the story behind the Studebaker production tie-up. With the problem solved, Studebaker appears ready to capitalize on its design hunch

DETROIT

EARLY this year when Studebaker's styling A-bomb exploded, observers watched for a production mushroom over South Bend. Interest in the car, they reasoned, was something akin to an advertising man's concept of Utopia and, as even the automaker opposition admitted sourly, "You can probably find 250,000 people who will buy anything that's different."

But following one of the most expansive publicity naturals since Marilyn Monroe, an embarrassed silence emanated from South Bend. A few cars were being built in February and a few dealers displayed them. But these were sedans and the clamoring masses wanted to see the coupes and the hardtops. Dealers were forced to maintain interest through mere photographs and as time wore on their smiles became as frozen as production. Then at last, on March 4, the full line of cars was ready.

Villainous Fender—What happened between December 15 when Studebaker began its model change-over and March 4 when the cars finally began to roll is a story that has been much rumored about and speculated upon. Here is what actually happened, and the villain in the piece is named front fender.

The photo at the right above perhaps tells the story better than words. As early as November Studebaker knew it was going to have trouble with the front fender forming dies. In trials on presses the fenders were being made in two forming operations as shown at the left. From the blank to the first fold the fenders were forming much as expected, but the second form for the finished fender was unsatisfactory. Expansion of the metal from the fold to the rounded contour was resulting in rupture.

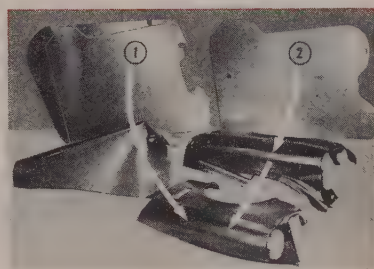
No Quick Cure—In a manner that only other men of the industry can

understand, Studebaker set out to whip the job. Many men worked days at a time from dawn to midnight trying the quick cures, the slick cures and the miracle cures. They had been given the dies, the metal and the presses. Sometimes they made as many as 2500 fenders without getting a good one, for the fender constituted a draw that many said could never be made.

But Studebaker stuck to its presses and the tired men trying to whip the job pointed out that, regardless of the time element, a new method of forming was called for if the job was to be whipped. The new dies were designed and built in something near record time. As shown at the right, the first form now includes much of the rounded contour and the second form is essentially a fold to complete the finished contour followed by resistance welding as shown. Steel saved has already paid for the cost of the new dies and production is steady with a rigid, top-quality fender being produced.

Seeking Advice—Studebaker believes its method of fender forming is unique in the industry and an important style note is implied in the fact that Studebaker is now being consulted by many other automakers with similar fender forming problems on their models of the not-too-distant future. Studebaker's design in some aspects seems to have set the measure for the industry.

Why did Studebaker decide to take its design plunge? The answer is that mystical combination of calculation and hunch which has always determined auto styling. Like most auto companies every model year, several styles were prepared by Studebaker to give alternative choices. Postponing its decision as long as possible and eyeing closely the strength of the



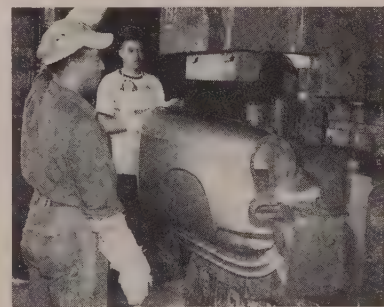
Former and present drawing steps . . .

Offending Fender

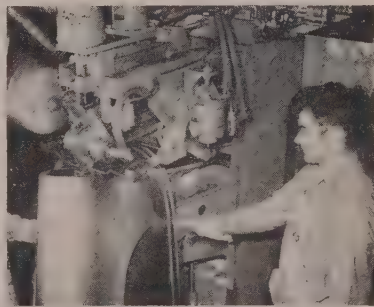
How Studebaker ran into trouble with its fender draw (1), and what it did about it (2), above. Below, how the problem front fender is made now



First draw, fender form appears . . .



Second draw, fender form complete...



Induction welding the front seam . . .

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sports car trend, Studebaker decided this was the year. Even Studebaker underestimated model acceptance.

A Ratio Changes—Initial plans called for production in a ratio of 60 per cent sedans to 40 per cent coupes since the sedan caters to the more conventional auto owner. Sedans held up volumewise as expected, but added demand for the coupes has hiked their percentage of output to 60. And Studebaker admits it is ready to return the convertible to the line whenever sales start to slump. If Studebaker thinking parallels that of the industry, the convertible could reappear in the 1954 model lines.

But Studebaker's problem thus far has not been demand. A strike shortly after model introductions and the current Borg-Warner set to have crippled Studebaker production badly. One dealer reports he is taking orders for some models on one-to-two months delivery. Many other makes of cars are being traded in on Studebakers, too, indicating that many new faces are in the Studebaker ranks.

Too Soon To Know—As the Borg-Warner strike seemed on the verge of settlement last week, Studebaker prepared to go back to two shifts. When that happens the true impact of the styling venture on the consuming public can be more adequately evaluated.

Car of the Week

When the new Studebaker arrived on the automotive scene, few people denied that it looked like a sports car. Its resemblance to the Italian Lancia, in particular, is extremely striking. But the big question was—does the Studebaker handle like a sports car?

A week of driving in a Studebaker Commander Regal coupe certainly indicates that if there is any popular make of American car that may be classed as a sports car it is the Studebaker. With power steering, wheel turn is reduced to a 4¼ turns lock to lock while the steering wheel is small and sits right in the driver's lap contributing to good visibility and ease of handling. Only when driven through a test corner at speeds ten miles an hour greater than com-

Auto, Truck Output			
U. S. and Canada			
	1953	1952	
January	612,815	424,559	
February	623,793	464,577	
March	752,474	525,024	
April	782,453	570,464	
May	685,396	542,559	
June		542,478	
July		226,134	
August		322,755	
September		595,715	
October		656,767	
November		548,782	
December		569,715	
Total		5,989,509	
Week Ended	1953	1952	
May 30	125,868	104,935	
June 6	134,619	128,837	
June 13	166,832	130,574	
June 20	169,031	129,353	
June 27	171,003	124,370	
July 4	159,000*	86,036	

Sources: Ward's Automotive Reports.
*Estimated by STEEL

parable makes did the rear end begin to break loose in sports car fashion. Even with power steering road feel was good and correction was positive. Body roll is minimal, never out of hand.

Roadability Good—Road holding at indicated speeds over 80 mph was excellent calling for only slight correction with a minimum of wander and float. Ride is comfortable while retaining in a large degree the firmness desirable for good control at speed. Acceleration, however, with automatic transmission was noticeably sluggish in initial take-off with the real windup beginning at between five and ten mph. Passing acceleration with kick-down was good.

Carrying out the sports car idea, Studebaker has placed six toggle switches across the top of the instrument panel in enticing if somewhat confusing array. Instruments are mounted in four visored dials with an almost facetiously business-like look. Closer instrument grouping at nearer eye level would be an improvement.

Tall Men to the Front—The interior calls for stretched legs in the front seat, an acceptably comfortable position. The third person in the front seat straddles a horsebackish transmission tunnel while the two persons in the back, if of average-sized feet, can get by

in pretty good shape by placing same in recesses. Woe to a tall man wearing a hat who likes to move around, however.

Luggage space is at a premium in the trunk and a two-suitier must lie on its side. The engine compartment is well-filled, too, but a spot-check of filling station and garage men who have worked on the cars indicates there are few problems for normal maintenance operations. Upholstery materials are average but interior workmanship leaves something to be desired. Exterior finish and body work are better than average.

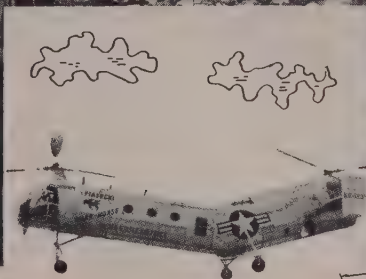
In-Between — The Studebaker seems to be sitting somewhat between the sports car and the passenger car, and in the opinion of many that is precisely where a car ought to be.

Exhaust Notes

Reportedly in the works by the auto manufacturers is a new headlight which will first have to be O. K'd by state legislatures. The new headlamp is said to give better general illumination and sharper contrast to objects on the road while glare to oncoming cars remains substantially unchanged.

Don't sell the Kaiser Motors Willow Run plant short. Although Willys has some stamping facilities, the firm is currently buying its bodies from Murray Body. As consolidation progresses it seems logical to expect that Willys body manufacture will be transferred to Willow Run while Kaiser body work should continue at the plant. It is reported that the line offered by Kaiser Motors next year will include two Kaiser models, two Willys models and two Henry J models.

Chevrolet will build a new 600,000 sq ft stamping and frame plant in Flint with capacity to handle 25 per cent of its passenger car frames. To be built by 1954 adjacent to the Flint assembly plant, the plant will also manufacture heavy stampings such as hoods and fenders now made in downtown Flint. Removable steel sections in the stamping plant floor to provide flexibility for repositioning presses, automatic scrap handling and other automatic processing will highlight the installation.



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H-21 TRANSPORT
HELICOPTER



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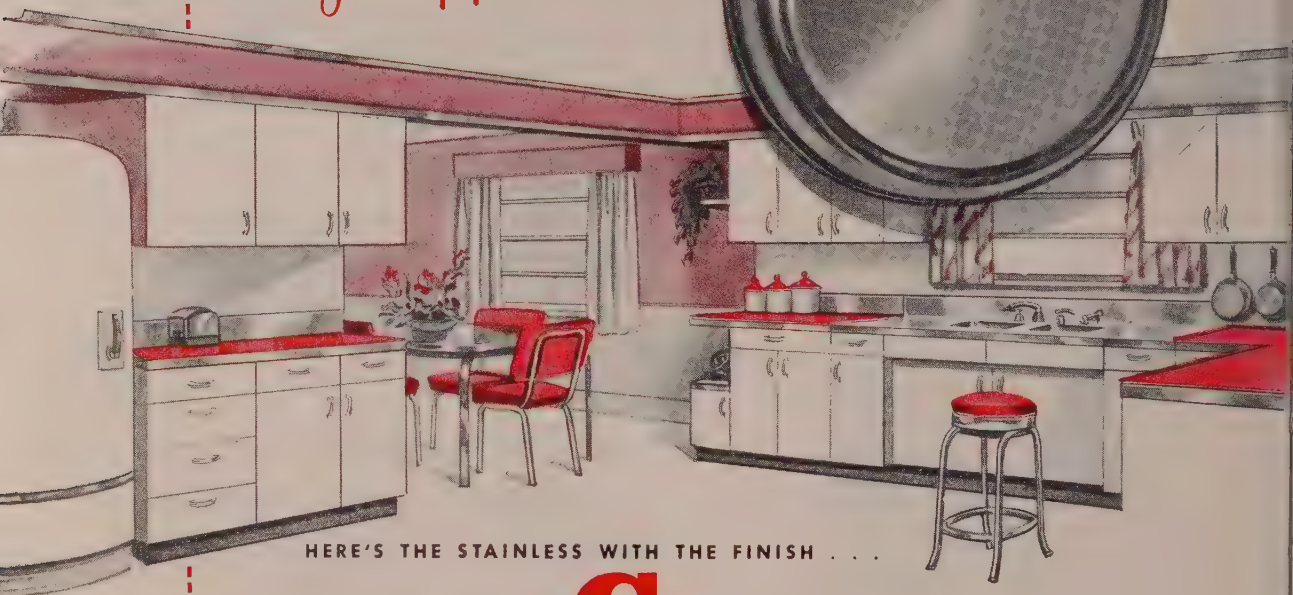
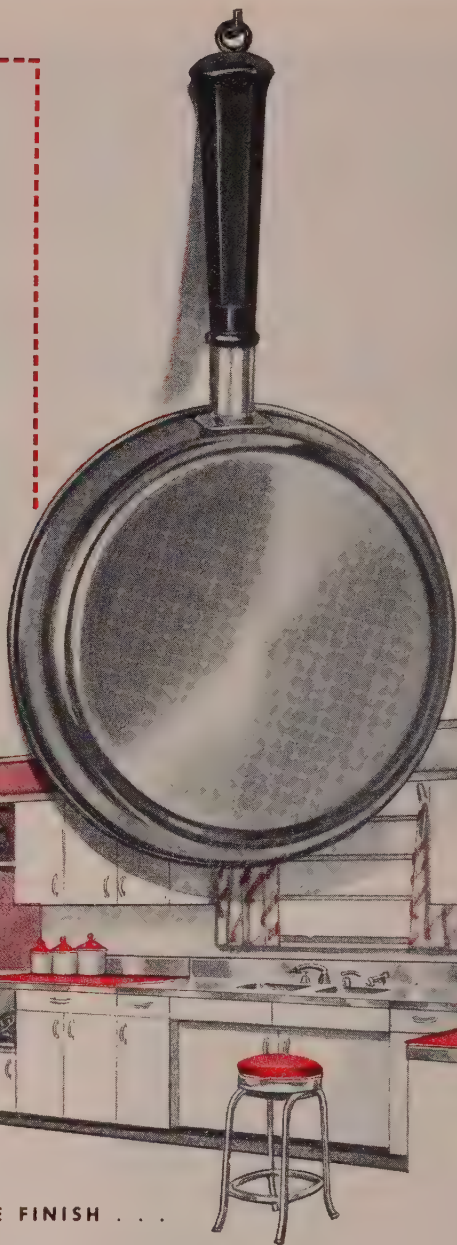
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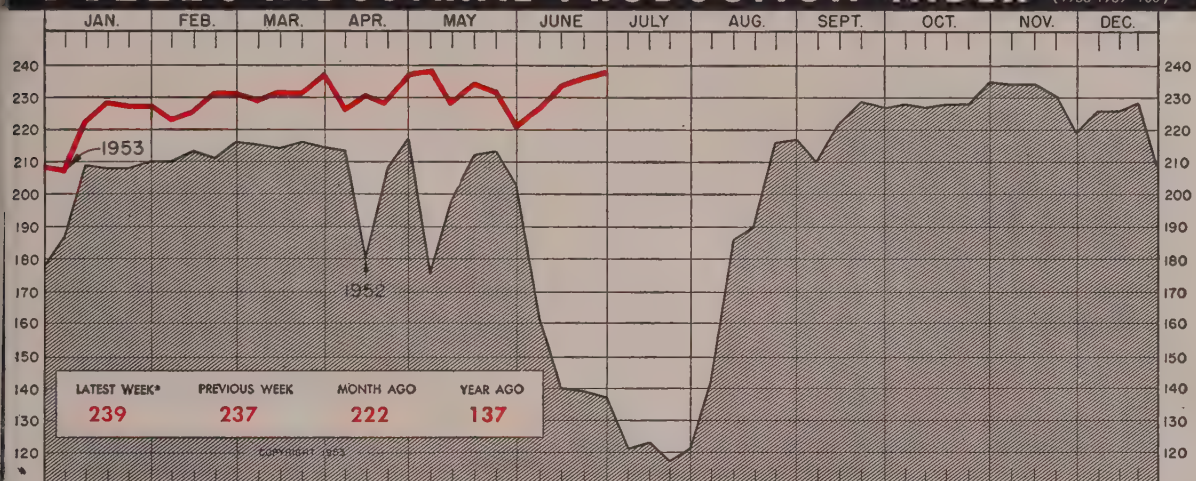
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SHARONSTEEL

STEEL'S INDUSTRIAL PRODUCTION INDEX (1936-1939 100)



*Week ended June 27

Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automotive Assemblies (Wards' Reports) 20%.

Industrial production index moves up 2 points to reach former heights. Corporations and consumers can look ahead with undiminished confidence

CONTINUED vigorous activity characterizes industrial output in the latest week. Recording an increase for the fourth consecutive week, from the low of the second quarter, STEEL's industrial production index for the week ended June 27, rose 2 points to 239 per cent of the 1936-1939 average. This output ties the previous high for the year, set in the first week of May, and a new production record is in the making. Electric output, which has been the index pacesetter for the past several weeks, will continue to keep production hot and people cool. With the end of the Borg-Warner Corp. strike, automobile production will roll toward its former production peak and provide the impetus for attaining new industrial production records.

Blame the Weather? . . .

The drought in the southwest is one of the prime factors in the increased use of electric power. People, in this topsoil to dust area, are trying to keep a cool head amid a disheartening situation. While trying to bring some semblance of normalcy back to the

land through the increased use of water, most of which must be pumped, they are running their air conditioners full blast. With hot weather throughout the country sales of room air conditioners this year are expected to double that of 1952. However, sales of these and other appliances in the southwest would probably be even better without the drought, for it has also dried up personal savings, which have been used to protect the land investment. In the week ended June 27, the Edison Electric Institute estimates that 8,329,000,000 kilowatt hours of electricity were distributed, 85 million more than the previous week.

Full Speed Ahead . . .

Another large item in the increased use of electric power has been the automobile industry. With the end of the transmission strike at Borg-Warner Corp. a smooth flow of cars will come from Willys, Nash, Studebaker, Kaiser and Hudson. Both automobile and electric power output will rise energetically. Only truck production is rolling downhill, as the industry made

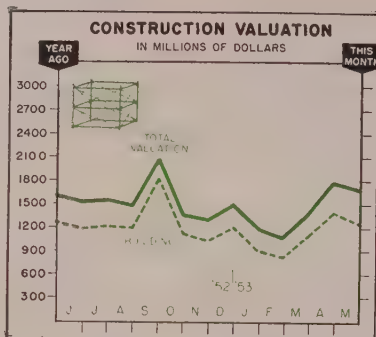
fewer trucks in the week ended June 27, than in the corresponding week in 1952. According to *Ward's Automotive Reports*, production of automobiles and trucks by U. S. and Canadian plants in the same June week was 171,003 units, a gain of about 2000 units over the previous week.

By the Carload . . .

Carriage of automobiles and steel leads all other factors in estimated freight car loadings for the third quarter. Loadings are expected to be about 8 per cent more than the same quarter in 1952, though they will probably be 18 per cent less than the previous quarter of 1953. In the week ended June 20, the Association of American Railroads says that loadings of revenue freight totaled 812,578 cars, an increase of 1.9 per cent above the previous week. Due in large part to the increased use of electricity and the below normal coal stocks of electric utilities coal loadings increased by 7015 cars over the previous week. The increase in coal production amounted to 525,000 net tons, says the National Coal Association.

Still Blooming . . .

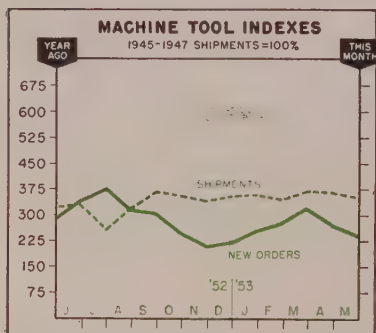
Even with furnaces down for repairs from time and time and



Construction Valuation
(37 States)—in Millions of Dollars

	Total		Building	
	1953	1952	1953	1952
Jan.	1,075.9	902.1	867.0	695.4
Feb.	1,021.3	885.2	792.9	697.8
Mar.	1,347.5	1,321.3	1,054.4	1,056.0
Apr.	1,741.5	1,597.5	1,354.2	1,243.9
May	1,606.1	1,563.6	1,219.8	1,216.2
June	.....	1,458.8	.....	1,133.3
July	.....	1,511.3	.....	1,170.5
Aug.	.....	1,438.7	.....	1,147.5
Sept.	.....	2,039.2	.....	1,790.8
Oct.	.....	1,310.1	.....	1,072.8
Nov.	.....	1,248.8	.....	989.9
Dec.	.....	1,467.4	.....	1,147.7
Total	.....	16,774.9	.....	13,362.1

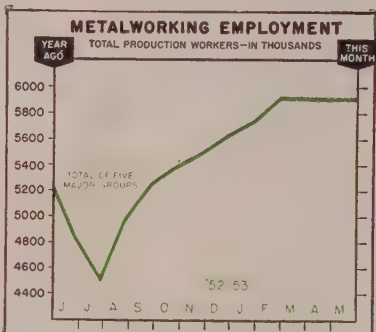
F. W. Dodge Corp.



Machine Tool Indexes
1945-1947 Shipments=100

	New Orders		Shipments	
	1953	1952	1953	1952
Jan.	255.8	347.8	361.6
Feb.	282.1	318.8	354.5
Mar.	327.0	324.3	375.9
Apr.	276.8	293.5	372.7
May	247.2	284.6	359.0
June	342.9	.....
July	376.3	.....
Aug.	311.1	.....
Sept.	302.4	.....
Oct.	243.3	.....
Nov.	205.4	.....
Dec.	225.2	.....

National Machine Tool Builders' Assn.

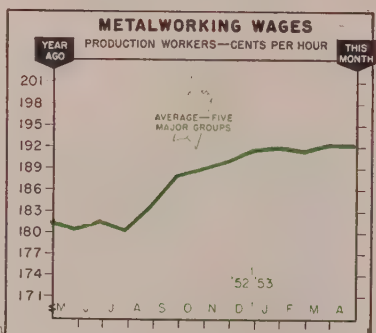


Metalworking Employment
In Thousands

Production Workers—Five Major Groups

	Prim. Mtls.	Fab. Prod.	Mach-inery	Elec. Mch'y.	Trans. Equip.
1952					
May	1,141	798	1,289	708	1,307
June	716	769	1,261	706	1,323
July	676	726	1,203	685	1,169
Aug.	1,110	783	1,181	708	1,192
Sept.	1,153	821	1,193	743	1,330
Oct.	1,162	847	1,212	766	1,380
Nov.	1,173	863	1,242	784	1,421
Dec.	1,183	881	1,283	800	1,460
1953					
Jan.	1,188	891	1,289	804	1,484
Feb.	1,142	942	1,323	916	1,543
Mar.	1,145	953	1,335	924	1,576
Apr.	1,145	953	1,327	926	1,576
May	1,140	952	1,307	922	1,573

U. S. Bureau of Labor Statistics.



Metalworking Wages
(cents per hour)

Production Workers—Five Major Groups

	Prim. Mtls.	Fab. Prod.	Mach-inery	Elec. Mch'y.	Trans. Equip.
1952					
May	184.1	171.8	184.3	169.7	193.6
June	183.0	171.6	184.7	170.5	194.4
July	182.0	170.0	183.8	170.2	192.1
Aug.	192.5	173.2	184.9	170.8	194.5
Sept.	199.3	176.8	187.2	172.1	201.8
Oct.	198.2	178.5	188.4	173.0	204.2
Nov.	199.8	179.6	190.2	173.3	204.7
Dec.	201.1	181.5	192.4	173.9	205.9
1953					
Jan.	203.8	181.6	192.7	175.6	203.6
Feb.	202.0	182.0	194.0	174.0	204.0
Mar.	201.0	183.0	195.0	174.0	205.0
Apr.	201.0	184.0	195.0	175.0	206.0

U. S. Bureau of Labor Statistics

most of the employees of the Sharon Steel Co. participating in a mass vacation, steel producers will keep turning out billets, blooms and slabs at about the present high rate. The Fourth of July holiday has had little effect on steel production, for the American Iron & Steel Institute estimates that furnaces poured 2,166,000 tons of steel ingots and castings during the week which ended on Independence day. This is only 17,000 tons less than the previous week. Despite some easing of orders from appliance, truck and farm equipment manufacturers the steel industry reports solid bookings for the third quarter.

More Working Capital . . .

What with full bookings ahead for the steel industry and a high rate of production during the first half of the year, it is not surprising to find that the net working capital of U. S. corporations increased considerably more in the first quarter of the year than in the preceding quarter, the last three months of 1952. This growth in working capital to \$86.9 billion in March was largely due to a reduction in current liabilities. And even though the decline in current liabilities was accounted for mainly by increased first quarter pre-payments of income tax liabilities the net effect is to put most corporations in a better financial position.

Higher inventories are also being pointed out by the Securities & Exchange Commission. In this connection it is well to remember that higher inventories are necessary in order to sustain higher production.

Primary Prices Rise . . .

In connection with the financial positions of consumers the increase in the wholesale price index for all commodities other than farm and foods during the week ended June 23, is to be noted. This increase was the first in these particular primary prices during the last five weeks and relates back to the recent price rises in steel, scrap iron, tin, gasoline and similar fuels, according to the Bureau of Labor Statistics. In the coming weeks

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Issue Dates on other FACTS and FIGURES Published by STEEL

Durable Goods . . . May 4	Indus. Production . June 22	Ranges, Gas . . . May 18
Employ., Steel . . . June 1	Ironers . . . June 29	Refrigerators . . . May 18
Fab. Struc. Steel . June 15	Malleable Castings . June 8	Steel Castings . . . June 8
Foundry Equip. . . June 1	Prices, Consumer . June 22	Steel Forgings . . . June 8
Freight cars . . . June 15	Prices, Wholesale . June 1	Steel Shipments . . June 22
Furnaces, Indus. . June 15	Pumps . . . June 1	Vacuum Cleaners . June 29
Gear Sales . . . May 18	Radio, TV . . . May 25	Washers . . . June 29
Gray Iron Castings . June 8	Ranges, Elec. . . Apr. 13	Water Heaters . . . June 29

BAROMETERS OF BUSINESS

INDUSTRY

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Output (per cent of capacity) ²	99.0	98.0	12.0
Electric Power Distributed (million kwhr).....	8,446	8,329	7,318
Bituminous Coal Output (daily av.—1000 tons)....	1,646	1,558	1,316
Petroleum Production (daily av.—1000 bbl)....	6,520 ¹	6,470	6,153
Construction Volume (ENR—millions).....	\$484.4	\$249.7	\$365.1
Automobile, Truck Output (Ward's—units)....	171,003	169,031	124,370

TRADE

Freight Car Loadings (unit—1000 cars).....	822 ¹	813	649
Business Failures (Dun & Bradstreet, number).....	159 ¹	167	163
Currency in Circulation (millions) ³	\$29,929	\$29,970	\$28,814
Dept. Store Sales (changes from year ago) ³	+13%	-3%	+1%

FINANCE

Bank Clearings (Dun & Bradstreet, millions)...	\$19,026	\$19,451	\$18,828
Federal Gross Debt (billions).....	\$265.4	\$267.2	\$258.5
Bond Volume, NYSE (millions).....	\$14.1	\$13.5	\$13.2
Stocks Sales, NYSE (thousands of shares)....	5,121	5,512	6,025
Loans and Investments (billions) ⁴	\$76.6	\$76.5	\$75.0
United States Gov't. Obligations Held (billions) ⁴	\$29.5	\$29.4	\$32.4

PRICES

STEEL's Weighted Finished Steel Price Index ⁵	187.73	187.38	171.92
STEEL's Nonferrous Metal Price Index ⁶	224.7	224.7	222.8
All Commodities ⁷	109.5	109.3	111.2
All Commodities Other Than Farm and Foods ⁷	113.9	113.5	112.6

* Dates on request. ¹Preliminary. ²Weekly capacities, net tons: 1953, 2,254,459; 1952, 2,077,040. ³Federal Reserve Board. ⁴Member banks, Federal Reserve System. ⁵1935-1939 = 100. ⁶1936-1939 = 100. ⁷Bureau of Labor Statistics Index, 1947-1949 = 100.

the effect of these price changes will drive the index up somewhat further. However, the National Association of Purchasing Agents believes that consumer resistance, production capacities and strong competition will restrain an inflationary price spiral.

Financially Healthy...

Whether or not the cost of living rises proportionately with wholesale prices consumers are in a good financial position. Their moderated spending during 1952 built up liquid savings at a faster rate than other recent years and their level of income during early 1953 was considerably higher than the same period in 1952. Although consumer debt rose to an all-time high during 1952 the fact that many of these debtors are young couples with families is of especial interest. They are attempting to acquire in a relatively short time the large stock of durable goods that enter into an accepted standard of living says the Federal Reserve Bulletin for June, 1953. Their income experience encourages them to use credit and their incomes bulwark this usage since they have received income increases with considerably greater frequency during the postwar period than older units.

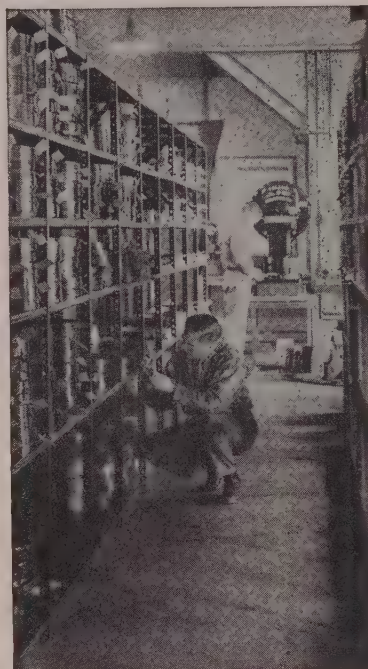
Capital Improvements...

Just as young couples expound their faith in a better future through the use of credit so do the industries of this country. During the week ended June 24, the Federal Reserve System reports an increase of \$702 million in commercial, industrial, and agricultural loans since the first of the year. Knowing that the working capital of most corporations improved during the early part of the year it is probable that most of this money will be spent on what to the consumer is durable goods and to the manufacturer capital improvements. This statement is buttressed by May bookings for 306,319 tons of fabricated structural steel. May orders were the highest so far for the year, were the second consecutive month that bookings have been over 300 thousand tons and were almost 100 thousand tons better than the same month in 1952.

Trends Fore and Aft...

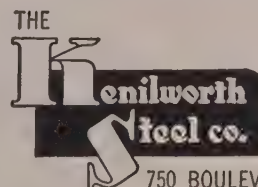
April shipments of steel forgings totaled 196 thousand short tons, a drop of 2 per cent from shipments in March... Shipments in April of nonferrous castings were 213 million pounds.

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Men of Industry



RALPH R. NEWQUIST
... heads Roots-Connersville Blower



HOWARD G. GRIM
... Heppenstall gen. mgr.-operations



HENRY McKEEN
... Campbell, Wyant & Cannon sales mgr.

Ralph R. Newquist was appointed president and general manager, Roots-Connersville Blower Division, Connersville, Ind., Dresser Industries Inc. He succeeds R. H. Owens, who becomes chairman until retirement later this year. Mr. Newquist joined Roots-Connersville in 1946 as vice president in charge of sales. Since 1951 he has been executive vice president. Before joining Roots-Connersville he was manager of the Washington office for Allis-Chalmers Mfg. Co.

Neele E. Stearns and William G. Caples were elected vice presidents of Inland Steel Co., Chicago, effective August 1. They will occupy newly created positions in the company's management. L. B. Hunter was appointed president of Inland Steel Container Co., a division of Inland, to succeed Mr. Caples, and William A. Jahn succeeds Mr. Stearns as president of Inland Steel Products Co., manufacturing subsidiary in Milwaukee.

S & C Electric Co., Chicago, promoted John S. Ferguson to administrative engineer. John J. Mikos, formerly switchgear engineer with Westinghouse Electric Corp., was appointed to the newly created post of chief design engineer. Added to the sales staff are Jack B. Castle and Donald R. Franzmann as application engineers.

Howard G. Grim was promoted to general manager of operations and Paul H. Daley to assistant general manager of operations of Heppenstall Co., Pittsburgh. In their new responsibilities they will co-ordinate operations of the company's steel forging plants at Pittsburgh and New Brighton, Pa. Mr. Grim, who joined the company in 1929, has been successively promoted to open-hearth superintendent, general superintendent and works manager.

Floyd V. Snodgrass, former general manager, Nordstrom Valve Division plant at Oakland, Calif., Rockwell Mfg. Co., was given a special administrative post involving supervision of production and operations at Oakland and Sulphur Springs. He is replaced at Oakland by W. D. Willes who was general manager of the company's Barborton, O., plant. W. T. Gettig, former works manager of Edward Valves Inc., Rockwell subsidiary, was named general manager at Barborton.

Warren B. Irish was appointed regional sales manager for Shunk Mfg. Co., Bucyrus, O., representing the company in Ohio, western Pennsylvania and West Virginia. Larry Efaw was appointed office sales manager and Oscar C. Geiser heads customer relations.

Henry McKeen, a member of the sales department of Campbell, Wyant & Cannon Foundry Co., Muskegon, Mich., since 1952, was named sales manager. He assumes the position previously held by the late David J. Vail, vice president-sales manager.

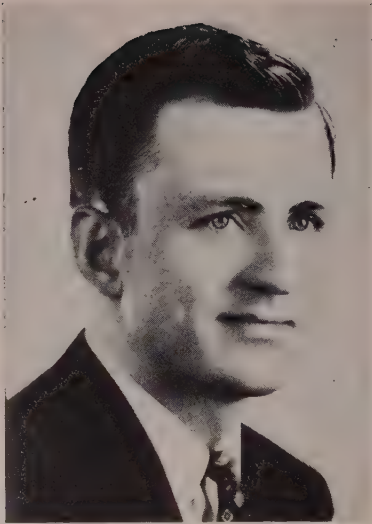
At Berger Mfg. Division, Republic Steel Corp., A. C. Rudy becomes manager, New York sales branch; C. K. Reynolds, manager of steel kitchen sales; and Herbert Steinkamp assumes the newly created position of assistant manager of steel kitchen sales. These appointments follow promotions, recently announced, of Charles E. Howes to general manager of sales and D. E. George to manager of sales, steel equipment division.

Charles T. McClure has advanced from superintendent of field engineers, tube division, to assistant manager of oil country tubular sales at Youngstown Sheet & Tube Co., Youngstown.

Appointment of Paul Meeks, California Institute of Technology rocket engineer, to head a new development and manufacturing program for guided missile instruments was announced by Clary Multiplier Corp., San Gabriel, Calif. He will fill a newly created position of general manager of the in-



CHARLES D. SMITH



EDWARD H. PERKINS

... Brooks & Perkins appointments

strument division, directing expanded operations in that field.

Charles D. Smith joins Brooks & Perkins Inc., Detroit, as works manager of its mill division at Livonia, Mich., and Edward H. Perkins moves to Detroit from the B & P New York office to manage the newly established commercial division. Mr. Smith was with U. S. Steel Corp. as superintendent of its rolling mill at Donora, Pa.

Morse Twist Drill & Machine Co. appointed Fred Duff to the district managership of operations in Chicago and surrounding area. He is succeeded as district manager, metropolitan New York, by Rex Bennett.

J. D. Grace, manager of the advertising and sales development department of Nordberg Mfg. Co., Milwaukee, was promoted to sales manager, screen department, crusher division. He is succeeded in his former position by R. E. Schulz.

M. J. Walker, former vice president and sales director, Jacobsen Mfg. Co., Racine, Wis., was elected vice president in charge of sales, advertising and merchandising of Pioneer Gen-E-Motor Corp., Chicago.

T. N. Thomas was elected manager of sales, Jessop Steel of Canada Ltd. He has been with Jessop Steel for 12 years both in the United States and Canada and was, until his present position, a Canadian

sales representative. His headquarters remain in Toronto.

William R. McCalister was appointed assistant general superintendent, Gary, Ind., Works, National Tube Division, U. S. Steel Corp.

Ahlberg Bearing Co., Chicago, appointed R. L. Schutte sales manager, P. H. Staerk advertising manager and J. E. Davis assistant treasurer. Mr. Schutte has been assistant manager of sales for the last four years.

J. S. Freese was promoted to assistant general production manager of Timken Roller Bearing Co., Canton, O., and Wilfred G. Herbert to production manager of the bearing division of all Timken com-

pany plants. Mr. Freese, since 1942, has been production manager of the steel and tube division and is succeeded in that position by Robert J. Townsend. Succeeding Mr. Herbert as production manager of the Canton bearing factory is Charles L. Richey, former assistant to that position. Ralph A. Boyd replaces Mr. Townsend as assistant production manager, steel and tube division.

Truman W. Floyd, western divisional sales manager, Rieke Metal Products Corp., was promoted to vice president and general manager for sales. He continues headquarters in Oakland, Calif.

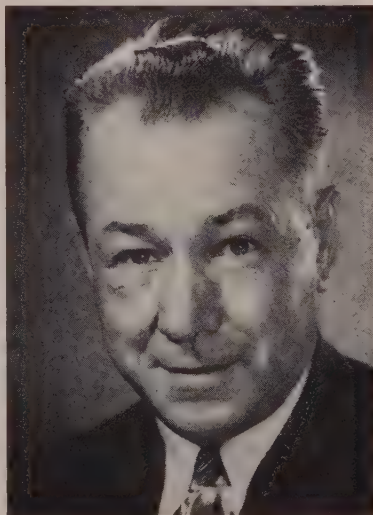
Edward H. Paulsen succeeds Keller G. Phillippe as Los Angeles district office manager, United States Steel Supply Division, U. S. Steel Corp. Mr. Phillippe was promoted to product manager, alloy sales.

Lucien W. Moore, director of purchases at Crane Co., Chicago, was elected vice president and George L. Larson, general superintendent, Chicago Works, was appointed executive assistant.

John W. Marton, sales engineer in the San Francisco area for Virginia Metal Products Inc., was named San Francisco district manager.

George E. Johnson has retired as assistant to the general superintendent, Watertown, N. Y., division, New York Air Brake Co., after 38 years with the company.

C. B. Terry is now general man-



J. S. FREESE



WILFRED G. HERBERT

... promotions at Timken Roller Bearing

HANDLE ALL YOUR EMULSIFYING CUTTING OIL NEEDS with S.E.C.O. and S.E.C.O. HD "F"

Sunoco Emulsifying Cutting Oil — For general-purpose cutting and grinding.

This product is more widely used in metal-working plants than any similar oil. It has high emulsion stability and cooling efficiency, excellent lubricating and rustproofing characteristics. Those features, plus low initial cost, make S.E.C.O. ideal for a wide range of machining, grinding and rolling operations on both ferrous and nonferrous metals.

Sunoco Emulsifying Cutting Oil HD "F" — For heavy duty cutting.

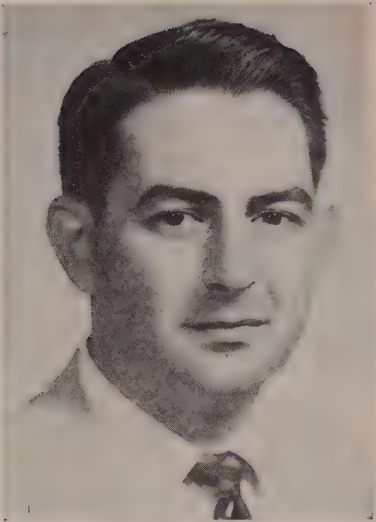
Its extreme pressure properties give it a film strength more than twice that of regular emulsifying oils. This high film strength, plus increased "oiliness" characteristics, makes it ideal for machining jobs too tough for regular soluble oils and too hot for straight cutting oils. Emulsions of S.E.C.O. HD "F" are clean smelling and will remain so in service.

For complete data on S.E.C.O. and S.E.C.O. HD "F," call your nearest Sun office or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. S-7.

**INDUSTRIAL PRODUCTS DEPARTMENT
SUN OIL COMPANY**



PHILADELPHIA 3, PA. ♦ SUN OIL COMPANY LTD., TORONTO & MONTREAL



FRANK GRAMM
... new post at A. O. Smith



E. G. SANNER
... Mine Safety Appliances v. p.



L. A. PRICE
... Union Wire Rope div. mgr.

ager, electronics division, Air Associates Inc., Orange, N. J. He is succeeded as chief engineer by C. A. Sereno.

A. O. Smith Corp., Milwaukee, appointed **Frank Gramm** eastern regional sales manager for its welding products division. He will have headquarters in the new Lancaster, Pa., electrode manufacturing plant when it is completed this summer. Mr. Gramm, prior to joining A. O. Smith last August, was with Lincoln Electric Co., Cleveland.

Walter F. Carter was made assistant general superintendent of Acme Steel Co.'s Riverdale, Ill., plant. In addition he retains duties as director of technical services.

John H. Stickney was made sales engineer to serve Parker Appliance Co., Cleveland, in northern Indiana and central east Illinois.

R. J. Maxey was appointed to the post of special assignment on the staff of the vice president of Henry Motor Co., Freeport, Ill.

Named to new posts in General Electric Co.'s welding department at Fitchburg, Mass., are **Charles L. Helms**, manager of marketing administrative practices; **Austin Hiller**, manager of marketing analysis and planning research; and **Austin Leach**, manager of renewal parts. **Arnold Jensen** was made manager of GE's conduit standard lines sales, with headquarters at Bridgeport, Conn. Mr. Jensen was Philadelphia representative.

Mine Safety Appliances Co., Pittsburgh, elected **E. G. Sanner** and **C. M. Donahue** vice presidents of the company. Associated with the firm since 1920, Mr. Sanner has been manager of manufacturing since 1949, and also holds the position of vice president and a director of Callery Chemical Co., subsidiary. Mr. Donahue has been manager of the mining department and the International Division. He also is a director of Mine Safety Appliances Co. of Canada Ltd.

Carl F. Holland joined the Columbus, O., office of Honan-Crane Corp. as sales engineer for central Ohio and western West Virginia.

Representing Kennametal Inc.'s metalworking division are **Wallace T. Atlin**, Los Angeles; **William W. Lind**, Chicago; and **Mark Rollinson** and **Leonard Spicer**, Detroit.

Fay Carlson, formerly director of quality control at Sundstrand Machine Tool Co., was made manager, quality control department, Warner Electric Brake & Clutch Co., Beloit, Wis.

Richard D. Weinland succeeds the late **Robert Schrader** as general manager of purchases for Continental Can Co. Inc., New York, and **Clyde Bloedorn** was appointed acting manager of Continental Overseas Corp. They were formerly vice president and director and assistant general manager, respectively, of Continental Overseas, a subsidiary.

Union Wire Rope Corp., Kansas City, Mo., has enlarged its eastern division and has named **L. A. Price** division manager over 15 states, including Ohio on the west and Tennessee and Virginia on the south. Mr. Price formerly was district manager at Ashland, Ky., where he is succeeded by **R. D. Tripp**. **L. A. Davis** becomes district manager at Columbus; **Robert K. Cooke** at Pittsburgh; and **D. E. Bedford** continues at Albany, N. Y. **J. R. Wells** was added to the Ashland sales staff.

Gordon E. Medlock, formerly assistant sales manager, was appointed sales manager of Stearns Magnetic Inc., Milwaukee.

Darwyn I. Brown has resigned from Iron Age where he served as technical editor to join Mullins Mfg. Corp. as market development manager, Koldflo Division. He will have headquarters in Mullins' general offices in Salem, O.

James O. Wright was named assistant general purchasing agent, Ford Division, Ford Motor Co., Dearborn, Mich. He is succeeded by **W. A. Folsom** as assistant general manufacturing manager. The latter was also made a member of the division's operating committee.

Robert J. Simes was promoted to superintendent of the mechanical department at Lukens Steel Co., Coatesville, Pa.

Fred W. Fraley has retired as vice

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USE KERNS

"MOR-FILM"[®] COMPOUNDS

Depend on KERNS production-line and engineering experience for solving your processing problems.

- ★ **DRAWING**
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- ★ **STAMPING**
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- ★ **FORGING**
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KERNS can supply you with a properly engineered product for more parts with less scrap on YOUR Job. Contact our local representative for a No-Charge test.

*For toughest Draws try the famous "DRY-FILM"[®]

This corrected advertisement originally appeared in STEEL's Guide for Stainless Steel Buyers, June 22, 1953

L. R. KERNS COMPANY

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NEW ENGLAND	P.O. Box 102, Washington, R.I. Valley 1-6408
PHILADELPHIA-BALTIMORE	P.O. Box 433, Ocean City, New Jersey Ocean City 1064
PITTSBURGH, PENNSYLVANIA	1609 Investment Bldg. Grant 1-2294
CLEVELAND, OHIO	850 Euclid Avenue Main 1-4667
BIRMINGHAM, ALABAMA	1034 Brown-Marx Bldg. Birmingham 3-1966
DETROIT, MICHIGAN	6432 Cass Avenue Trinity 5-5300
MUSKEGON, MICHIGAN	301 Michigan Theater Bldg. Muskegon 2-2932
MUNCIE, INDIANA	1318 West Main Street Muncie 7893
MILWAUKEE, WISCONSIN	6126 West Burnham Street Mitchell 5-8998
ST. LOUIS, MISSOURI	1110 Brentwood Blvd. Delmar 3846
TRI-CITIES	Le Claire Hotel, Moline, Illinois Moline 4-4371
LOS ANGELES, CALIFORNIA	Arthur Supply Co. 5901 District Blvd. Kimball 5228
PALO ALTO, CALIFORNIA	Arthur Supply Co. 1547 Walnut Drive Davenport 5-7615

Since the introduction, about 15 years ago, of the completely integrated Yoder tube mill, with the revolutionary rotating welding transformer, the uses for electric-welded tubing has multiplied and the demand has grown at a phenomenal rate.

The reasons? Here are a few of them:

The tubular shape has inherent advantages in good looks, high strength, light weight and general adaptability to modern fabricating and assembly operations. Product designers find in electric-welded tubing a ready means of improving old and creating new designs, with new sales appeal.

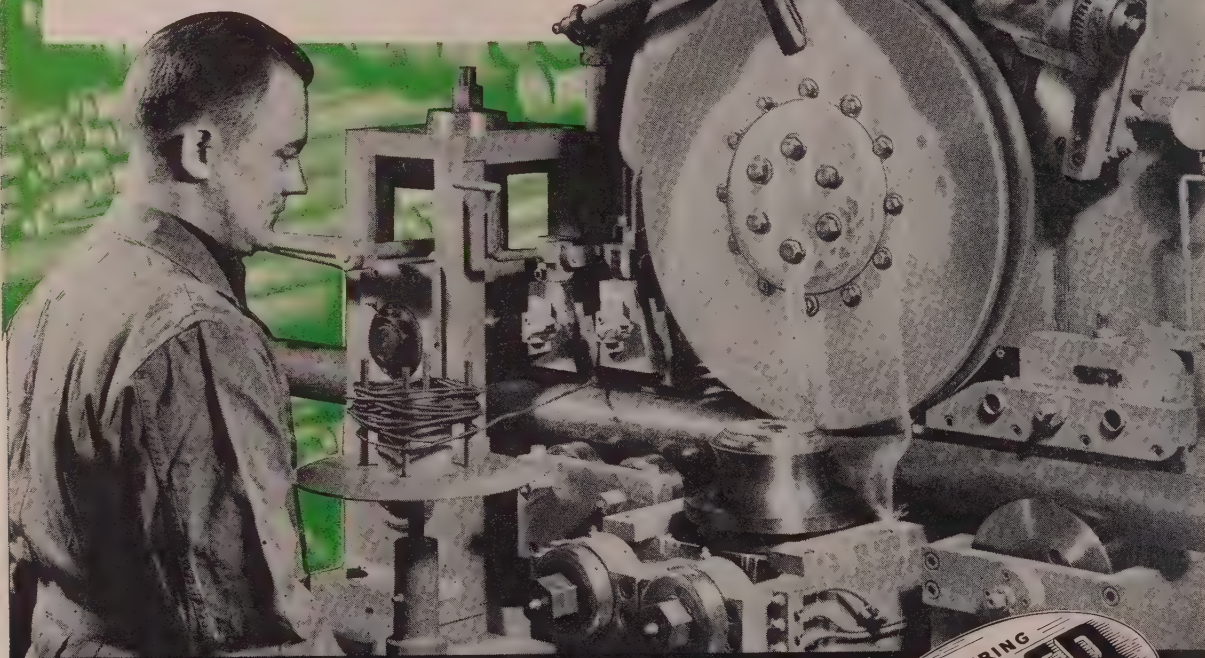
Compact, highly perfected new Yoder tube mills make production simpler, surer, and more economical. One operator and a helper in 8 hours will make from 25,000 to 50,000 feet of fine tubing, from coiled strip, entirely by cold processing.

The Yoder Tube Mill Book is a realistic story of one of the most interesting developments in modern metal working. Ask for it.

THE YODER COMPANY

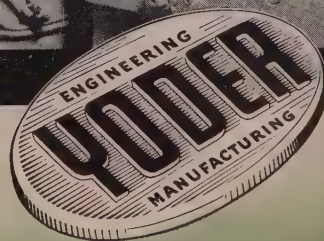
5562 Walworth Ave. • Cleveland 2, Ohio

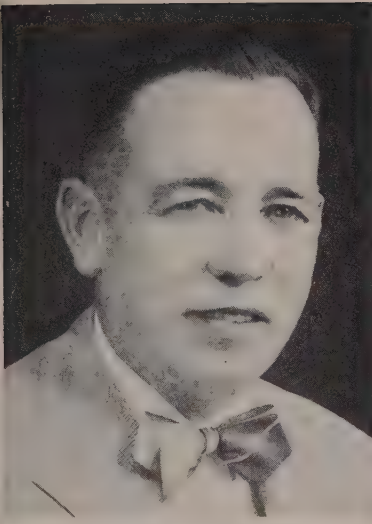
**Make Electric
Welded Tubing**



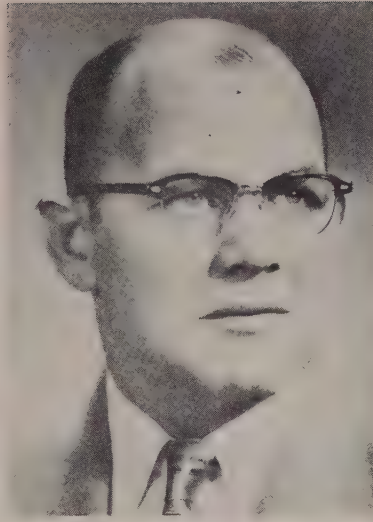
Complete Production Lines

- ★ COLD-ROLL-FORMING and auxiliary machinery
- ★ GANG SLITTING LINES for Coils and Sheets
- ★ PIPE and TUBE MILLS—cold forming and welding

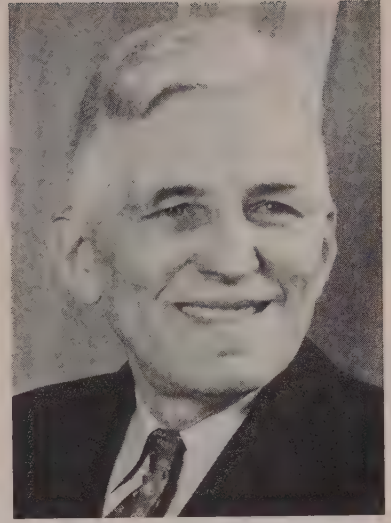




LESTER J. BLACKFORD
... sales mgr., Progressive Welder div.



HERMAN ZEIGLER
... gen. plant manager at Wisco Aluminum



ARTHUR F. MURRAY
... Electrolux v. p.-mfg.

president of Diamond Alkali Co., Cleveland.

Viking Division of Progressive Welder Sales Co., Detroit, appointed **Lester J. Blackford** sales manager and **Earl A. Goyeau** assistant sales manager. Mr. Blackford assumes his new position after three years as district sales manager of Welding Equipment & Supply Co. **William F. Tingler** was made director of advertising and sales promotion for the company.

James W. Hendry was promoted to assistant vice president in charge of plastics machine development at **Jackson & Church Co.**, Saginaw, Mich.

L. E. Howard Jr. was elected secretary-treasurer, **American Pipe & Steel Corp.**, Alhambra, Calif.

Wisco Aluminum Corp., Detroit, promoted **Herman Zeigler** to the position of general plant manager in charge of all operations at its extrusion and fabricating plant in Detroit. He was formerly production superintendent. Before joining Wisco six months ago, Mr. Zeigler was plant supervisor at Peerless Production Co. and before that was with Grodan Mfg. Co.

Columbia Tool Steel Co. appointed **H. Wilson Ryno** as its sales representative in the New Jersey and New York districts with headquarters in Newark, N. J.

Herbert E. Fryer, associated with **United States Steel Corp.** for 46 years, has retired as manager of sales of the **Columbia-Geneva Steel Division's** Denver office.

Arthur F. Murray, works manager of **Electrolux Corp.**, Old Greenwich, Conn., for the last ten years, was elected vice president in charge of manufacturing. **G. E. Lofgren**, formerly director of research, becomes assistant to the vice president and director of research and will act for Mr. Murray in case of absence from the plant. **F. C. Doughman**, formerly chief engineer, becomes chief engineer and assistant director of research. **G. W. Norrick**, formerly assistant works manager, becomes director of equipment and methods. He is in charge of procurement, design and maintenance of machinery and tools and is to be consulted in connection with all proposed changes in manufacturing methods and processes.

OBITUARIES...

George H. Lange, 57, purchasing agent, **Alan Wood Steel Co.**, Conshohocken, Pa., for eight years, died June 20. He had formerly been purchasing agent for **Phoenix Iron Co.** for many years.

Edward P. Bullard Jr., 80, former president and chairman of **Bullard Co.**, Bridgeport, Conn., died June 26. He retired as president in 1946 after holding that position for 40 years. He served as chairman until 1951 when he was named chairman *emeritus*.

William E. Worth, 72, former executive vice president, **International**

Harvester Co., Chicago, died June 24. He retired in 1947 after 27 years with the company.

Arthur J. Singer, 86, vice president, **Youngstown Steel Door Co.**, died at his home in New York June 21.

Dr. Pierre I. Chandeysson, founder and president, **Chandeysson Electric Co.**, St. Louis, died June 5. He was active in management of the company until a year ago.

Frank J. Cullen, 82, founder and president of **Cullen-Friestedt Co.**, Chicago machinery firm, died June 22.

Charles F. Kelley Sr., 58, traffic

manager for **Buffalo Bolt Co.**, Buffalo, died June 22.

Edward Mettelman, proprietor of **Jacob Mettelman & Sons**, Utica, N. Y., scrap metal dealer, died June 19.

J. Donald Dutcher, 49, superintendent of instrument manufacturing at **Bausch & Lomb Optical Co.**, Rochester, N. Y., died June 22.

James L. Mills, 77, a retired chief engineer for **United States Steel Corp.**, died June 21 in Evanston, Ill.

Nathan L. Miller, general counsel, **United States Steel Corp.**, New York, died June 26.

Longren Enters New Field

Aircraft firm offers specialized metal forming presses and equipment on open market

MACHINERY and equipment that has aided Longren Aircraft Co., Torrance, Calif., to almost double its production of aircraft parts will be made available for sale on the open market for the first time.

Hampden Wentworth, managing director of Longren Aircraft, says his firm has entered the special machinery manufacturing field by forming a Machine Building Division to manufacture and market its many specialized metal forming presses and equipment.

Longren is noted for its ability in designing flexible and unique machines and equipment for fabrication of diverse types of metal components efficiently and economically. To date, this equipment has been developed for the firm's own use. Now, for the first time, Longren will make available to aircraft manufacturers and industrial firms its stretch-forming presses, curved-jaws for stretch-forming presses, forming twistors and hand-forming contour fixtures. Mr. Wentworth says additional machinery and equipment, enabling more economical forming of metal,

are in development or production stages.

Korhumel Buys Lyf-Alum Inc.

Korhumel Steel & Aluminum Corp. of Wisconsin, Milwaukee, purchased Lyf-Alum Inc., Oconomowoc, Wis., manufacturer of aluminum clapboard siding with baked enamel finish. Last November, Korhumel bought Federal Building Products Co., Milwaukee, a wholesale distributor. Lyf-Alum will continue with the same name and location and will be operated as a Korhumel division.

Atlas Chain Opens Branch

Atlas Chain & Mfg. Co., Philadelphia, opened a sales office and warehouse at 3130 Third Ave., S., Birmingham.

Minnesota Mining Names Agent

Minnesota Mining & Mfg. Co., St. Paul, appointed Metals Finishing Corp., Hazel Park, Mich., as distributor for its barrel finishing products.

Atwood Heads Institute

F. H. Atwood, vice president in charge of personnel and assistant chief counsel, Harbison-Walker Refractories Co., Pittsburgh, was

elected president of Refractories Institute, that city. W. A. Turner, president, McLain Fire Brick Co., Pittsburgh, was re-elected treasurer of the institute.

Sunnen Builds Plant Addition

Sunnen Products Co., St. Louis, producer of honing machines, portable hones, crankshaft grinders and automotive tools, dedicated a 22,000 sq ft addition to its plant.

Falcon Bronze Liquidating

Falcon Bronze Co. is going out of business because of its labor difficulties, ending the career of the 58-year old Youngstown producer of bronze, copper and aluminum castings. The company recently spent about \$500,000 for expansion of buildings and equipment. American Brake Shoe Co., New York, bought Falcon's equipment and machinery and will move it to its plants.

Cavert Wire Plant Moved

Cavert Wire Co., formerly of Ellwood City, Pa., is now established on Gallatin avenue, Uniontown, Pa. The firm specializes in manufacturing all types of strand annealed quality steel wire, bale ties, spooled wire for automatic balers and bundling wire for farm and industry. Considerable new machinery is being installed at the plant.

Beacor Producing New Muffler

Beacor Inc., Southington, Conn., is going into production on a new auto muffler, developed by Cecil Caulkins of Niantic, Conn. The unit, a cylinder-like cage of stainless steel wire, is being made on a subcontract basis by Beaton & Corbin Mfg. Co., Southington.

Ferroalloy Facilities Leased

Chromium Mining & Smelting Corp., Chicago, whose sole sales agent is Exothermic Alloys Sales & Service Inc., Bridgeville, Pa., granted its affiliate, Pacific Northwest Alloys Inc., a long-term lease for smelters and vacuum furnaces at Spokane, Wash. These facilities are owned by General Services Administration, Washington, and will be used for the production of fer-



American Car & Foundry Exhibits Talgo Train

A.C.F.-Talgo passenger train is shown on the trestle between St. Charles and St. Louis on the Wabash line. Unique features of the train include its complete reversibility, interchangeability of cars, adaptability to all interior arrangements. Similar trains have proven themselves in successful operation in Spain

It's High Production

AT HIGH STANDARD

(THE HIGH STANDARD MANUFACTURING CORPORATION, HAMDEN, CONNECTICUT)

Manufacturers of Sporting Fire Arms

WITH

Delpark

FILTERS

In this business of fighting increasing costs . . . the production of machines, particularly grinders, gets a long look . . . for its here that operational costs *can* be reduced. Even when rejections are low and machine efficiency high—it's a good bet that Delpark Filtration can pull the rejection rate much lower and push that machine to near absolute efficiency.

It's an equally good point to remember that so goes the efficiency of *your* equipment . . . so goes

the profit on *your* ledger. It's an extra good point to remember, too, that numerous case histories show Delpark Filters consistently amortize themselves in less than a year.

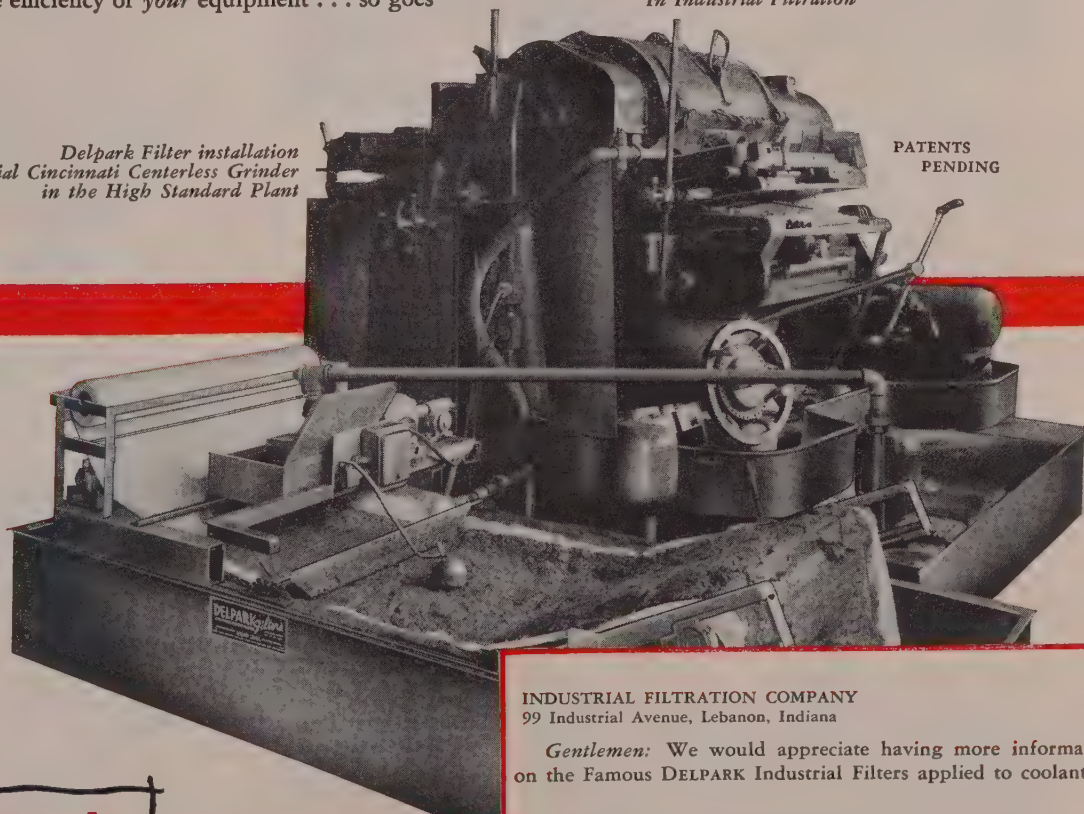
Let us tell you the complete story on what Delpark Filtration can do for your plant. Write for more complete information.

DELPARK INDUSTRIAL FILTRATION

*Backed By More Than 30 Years Experience
In Industrial Filtration*

*Delpark Filter installation
on Special Cincinnati Centerless Grinder
in the High Standard Plant*

PATENTS
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INDUSTRIAL FILTRATION COMPANY
99 Industrial Avenue, Lebanon, Indiana

Gentlemen: We would appreciate having more information on the Famous DELPARK Industrial Filters applied to coolants.

Name.....Title.....

Company.....

Address.....

City.....State.....

Delpark

INDUSTRIAL
FILTRATION

roalloys. For the last two and one-half years, Pacific Northwest Alloys has been operating the plant for the account of the government and has produced about 30 million pounds of magnesium.

Superior Tube Installs Furnace

A new vacuum furnace for annealing titanium and zirconium tubing was installed at Superior Tube Co., Norristown, Pa. The furnace can handle lengths up to 24 ft.

The company reports zirconium tubing is being drawn successfully to extremely small sizes. Seamless titanium tubing is now cold drawn to sizes as small as 0.030-in. OD x 0.005-in. wall thickness. Superior now offers seamless or Weldrawn titanium tubing in sizes up to 1.25-in. OD x 0.075-in. maximum wall thickness. Light wall seamless Monel and stainless tubing is said to be stirring up considerable interest in aircraft applications, particularly for air conditioning ducts. It is also convoluted into flexible metal hose and used for instrument expansion bellows.

Reynolds Appoints Distributor

Reynolds Metals Co., Louisville, appointed Meier Brass & Copper Co., Detroit, as a distributor of its aluminum products, including wire, rod and bar. The firm also will handle aluminum cast plate and bar for tools, dies and fixtures.

Railway Car Institute Moves

American Railway Car Institute moved to 19 E. 47th St., New York 17.

Research Group Plans To Build

Midwest Research Institute, Kansas City, Mo., plans to build a laboratory and headquarters structure. Construction of the \$1,250,000 building will start in the fall.

Fluor Buys Interest in Firm

Fluor Corp. of Canada Ltd., subsidiary of Fluor Corp. Ltd., Los Angeles, acquired an interest in H. G. Acres & Co., consulting engineers, Niagara Falls, Ont. Fluor of Canada is designing and building large refinery additions for Im-

perial Oil Co. at Regina, Sask., and for Shell Oil Co. of Canada Ltd. at Vancouver, B. C.

Froelich Steel Supply Formed

Norman J. Froelich, who has been associated with the steel industry for 30 years, has organized Froelich Steel Supply Co. Offices are located in the Grant building, Pittsburgh.

This new company will have warehousing facilities and at pres-



NORMAN J. FROELICH

ent will handle primarily sheet and strip, expanding into other fields when expedient.

Mr. Froelich has served in executive sales capacities during the past several years with Pittsburgh Steel Co., Detroit Steel Corp., Portsmouth Steel Corp. and Reynolds Wire Co. In addition, he served as an administrator of steel orders in the War Production Board during World War II.

Detectron Doubles Capacity

Detectron Co., designer and manufacturer of precision electronic detection equipment, completed its factory in North Hollywood, Calif. The firm's production capacity is more than doubled.

Battery Plant Starts Operations

Gould-National Batteries Inc., Trenton, N. J., formally opened its \$800,000 automotive storage bat-

tery plant in St. Paul. It is the fourth plant built by the company in the last two years. Albert H. Daggett, president, says the plant has a capacity of 450,000 batteries a year.

Askania Opens Cleveland Branch

Askania Regulator Co., a subsidiary of General Precision Equipment Corp., Chicago, established a branch office at 1836 Euclid Ave., Cleveland 15. T. W. Lasiewicz has been added to the territorial staff, in association with C. E. Hague and Hugh N. Helm.

Albert Heads Apparatus Makers

Edward J. Albert, president of Thwing-Albert Instrument Co., Philadelphia, was elected president of Scientific Apparatus Makers Association, Chicago. He succeeds J. Claire Evans, chairman, Denver Fire Clay Co., Denver. L. B. Swift, Taylor Instrument Companies, Rochester, N.Y., was elected president pro-tempore of SAMA; T. M. Mints, E. H. Sargent & Companies, Chicago, was re-elected treasurer of the group.

Set Screw & Mfg. Broadens Line

Set Screw & Mfg. Co., Bartlett, Ill., acquired from Shakeproof Division, Illinois Tool Works, Chicago, facilities for the manufacture and sale of the line of offset self-locking set screws formerly marketed by Shakeproof.

Moore Adds Warehouse

John B. Moore Corp., Nutley 10, N. J., established warehouse stocks at Kansas City, Mo. The company makes specialized solvents to replace carbon tetrachloride and other hazardous solvents.

Coolant-Lubricant Offered

Five production engineers have been appointed to represent the recently-formed Shear-Speed Chemical Products Division, Michigan Tool Co., Detroit. The division is introducing new universal coolant-lubricant for industry. The representatives are: E. W. Brock, Cincinnati; H. O. Monohan, St. Louis;

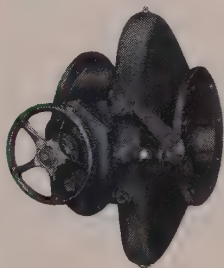
(Please Turn to Page 97)

**GOGGLE PLATE
FREES *Instantly***

**REGARDLESS OF TIME
BETWEEN OPERATIONS**



60" x 48" Bailey Valve for horizontal gas main.



Totally enclosed type Bailey Valve for 6" diameter gas main.

Bailey

**Mechanical
GOGGLE
VALVES**

No matter how long they remain unused, you can count on these valves to provide the tight, positive seal needed for shutting off gas mains in emergencies or for repairs. Requiring a minimum of maintenance, Bailey Mechanical Goggle Valves operate by a powerful clamping force which is applied equally to all points around the disc periphery. The goggle plate is freed by the same powerful mechanism. The safety and dependability of these valves have been thoroughly proved in service in gas washers, gas mains, coke plants and boiler plants. Available in sizes from 6" to 72", totally enclosed if desired.

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ENGINEERS
WILLIAM M. COMPANY
LEADERSHIP THROUGH QUALITY
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PITTSBURGH 16, PA

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NICKEL SILVER PHOSPHOR BRONZE NICKEL ANODES
. WELDING ROD whatever your requirements may be, specify
SEYMOUR for shipment from strategically located distributor warehouses.
Write us or consult with your nearest Seymour distributor for shipping
dates on mill run quantities.

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New York 17, N. Y.
Tel. OXford 7-2390

Providence, R. I.

Geo. M. Crawford
Box 418
Providence 1, R. I.
Tel. SCituate 1-5705

THE COREY STEEL COMPANY (Mill Products)

CICERO 50, Ill., 2800 S. 61st Court

DAVENPORT, Iowa, 736 Federal St.

INDIANAPOLIS 19, Ind., 119 S. Emerson St.

MILWAUKEE 2, Wisc., 647 W. Virginia St.

SOUTH BEND 16, Ind., 1113 Beale St.

MINNEAPOLIS, Minn., Northwestern Bank Bldg.

WILLIAMS & COMPANY (Mill Products)

CINCINNATI 19, O., 3231 Fredonia Ave.

CLEVELAND 14, O., 3700 Perkins Ave.

COLUMBUS 12, O., 851 Williams Ave.

PITTSBURGH 12, Pa., 901 Pennsylvania Ave.

TOLEDO 2, O., 650 Woodruff Ave.

DISTRIBUTORS (Anodes)

Bart-Messing Corp., 229 Main St., Belleville 9, N. J., Crown Rheostat
& Supply Co., 3465 N. Kimball Ave., Chicago, Ill. Eaton Chemical
& Dyestuff Co., 1490 Franklin St., Detroit, Mich., Enthone, Inc., 442
Elm St., New Haven, Conn., W. M. Fotheringham, 977 Niagara St.,
Buffalo 13, N. Y., The Gilbert Tramer Co., 1217 Main Ave., Cleve-
land 13, Ohio, Munning & Munning, Inc., 202-208 Emmett Ave.,
Newark 5, N. J., Smith Chemical & Supply Co., 70 Clifford St.,
Providence 3, R. I.

THE SEYMOUR MANUFACTURING COMPANY, SEYMOUR, CONNECTICUT

SEYMOUR

NONFERROUS ALLOYS SINCE 1878

(Continued from Page 94)

J. B. Parsons Co., Milwaukee; Polhemus-Miller Co., Chicago; D. C. Wedlick, Muncie, Ind.

Uses Cold Extrusion Process

Large machines for civilian production are being turned out by Lake Erie Engineering Corp., Buffalo, by a relatively new process that was developed for the defense program. The process is the cold extrusion of steel which has been used for the past several years in making shells for the armed forces.

Lake Erie Engineering now is building four large hydraulic presses that will be used for civilian production at Mullins Mfg. Corp.'s plant in Warren, O. Mullins will use the new presses in turning out such products as tandem axles for trucks and trailers and cylinders for hydraulic devices.

Motorola Opens Dallas Depot

Motorola Communications & Electronics Inc., Chicago, established a parts depot at 171 Parkhouse St., Dallas. Richard J. Clark is manager of the depot while E. L. Falls is southwest regional manager.

Plasteel To Furnish Studs

Plasteel Products Corp., Washington, Pa., concluded an arrangement under which it will supply Nelson Rivweld studs directly to purchasers and applicators of its protected steel roofing and siding materials. The studs are manufactured by Nelson Stud Welding Division, Gregory Industries Inc., Lorain, O.

Franke Gear Works Incorporated

Franke Gear Works, Chicago, was incorporated as Franke Gear Works Inc. William F. Franke, founder and sole owner for 15 years, is retiring from activity with the firm other than remaining on the board of directors. Control will be held principally by a group of key employees and officials. Officers are: Carl T. Franke, president; H. J. Karolczak, secretary and treasurer; V. A. Tinaglia, vice president and sales manager; Joseph W. Tinaglia Jr., assistant to

the president, in charge of manufacturing and engineering.

General Controls Expands

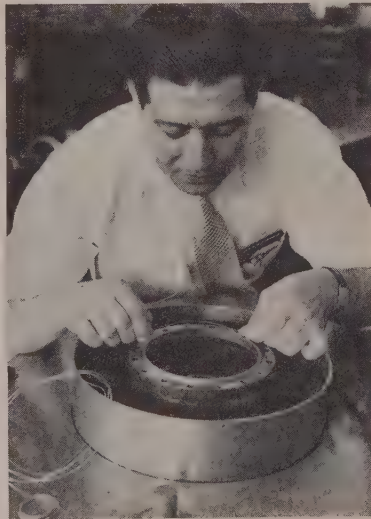
General Controls Co., Glendale, Calif., will start construction of a 120,000 sq ft plant in Burbank, Calif., for production of appliance controls. The plant is the company's third expansion in the past year.

British See "Impacter" Film

Eugene C. Clarke, president, Chambersburg Engineering Co., Chambersburg, Pa., attended the annual convention in Perthshire, Scotland, of National Association of Drop Forgers & Stampers of England. He presented by means of a sound motion picture the story of the Chambersburg impactor, the revolutionary hammer recently introduced in this country. This film, titled "Drop Forging in Mid-Air," demonstrates the theory of the impactor and then shows impactors at work automatically forging knife handles and turbine blades.

Machining Firm Moves

Tapered Air Products Corp. moved to 10890 Stanford Ave., Lynwood, Calif. The firm does precision machining of aircraft skins.



Strands of Gold

Dr. Z. M. Shapiro, Westinghouse scientist, is shown using solid gold wire to make a seal around a valve opening in a vacuum tank used in producing zirconium. For each tank, more than 9 feet of gold wire is required

Buys Brassert Process

Dominion Foundries & Steel will produce steel directly from molten iron

FIRST STEEL produced in Canada directly from molten iron by a new process using high-purity oxygen will be turned out early next year, Dominion Foundries & Steel Ltd., Hamilton, Ont., says.

F. A. Sherman, president, confirms an announcement from Dusseldorf, Germany, that the company has purchased all Canadian rights to the process in an agreement with Brassert Oxygen Technique A. F. of Zurich, Switzerland.

Mr. Sherman says that as far as he knows Dominion Foundries will pioneer the process for the North American continent. He deplores the "premature" announcement from Germany, however, because his company wanted to prove the process in actual operation.

The Brassert oxygen technique was originally founded by an Englishman, William Brassert, who eventually settled in the United States.

Heads Management Group

Charles J. Nowlan, supervisor, incentives and production standards, Inland Steel Co., Chicago, was elected president of Industrial Management Society, that city. He succeeds L. V. Fisher, head of the job evaluation department, Western Electric Co., New York.

Scully-Jones Names Agents

Scully-Jones & Co., Chicago, manufacturer of precision holding tools, appointed as stocking distributors: Walter R. Hammond Co., Minneapolis; Precision Tool Sales, Tulsa, Okla.; Eichman Machinery Co. Inc., Kansas City, Mo.

Knapp Reorganizes Sales Set-Up

James H. Knapp Co. Inc., Los Angeles, manufacturer of industrial furnaces, reorganized its sales engineering department under the direction of R. Paul Toeppen, vice president. Knapp furnaces, melters, forges, ovens and certain other products will be sold by Jack Brass, Abe Frumkin, Charles Wirth and Henry Posner. Knapp Russ induc-

(Please Turn to Page 100)

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(Continued from Page 97)

tion melting furnaces will be sold and serviced under the direction of Lenn Stuhlmiller. Knapp-Lee aluminum heat-treating furnace sales will be headed by J. Stanley Macaulay.

Cee-Bee Opens New Quarters

Cee-Bee Chemical Co., North Hollywood, Calif., manufacturer of chemicals for the automotive and aviation industries, opened a plant and offices at 9520 E. Cee-Bee Drive, Downey, Calif.

L. J. Lutz Co. Moves

Headquarters of L. J. Lutz Co., Los Angeles franchise representative of Automatic Transportation Co., Chicago manufacturer of electrically driven industrial trucks, have been moved to 7962 Salt Lake Ave., Huntington Park, Calif.

Kold-Hold Changes Name

Kold-Hold Mfg. Co., Lansing, Mich., manufacturer of refrigeration equipment and products in the industrial and domestic heating fields, changed its corporate name to Tranter Mfg. Inc. A Platecoil Division was established to manufacture Platecoil process heating and cooling plates. Contract Division will continue to manufacture products for other manufacturers.

Bristol Brass Forms Subsidiary

Bristol Brass Corp., Bristol, Conn., organized a wholly-owned subsidiary, Bristol Brass Corp. of California, 1217 E. Sixth St., Los Angeles. In addition to a complete line of brass mill products, the California firm will carry also aluminum and stainless steel. John H. Smith, formerly vice president and general sales manager of Continental Metals, Los Angeles, is vice president and general manager of the Bristol subsidiary. Other officers are: Roger E. Gay, president; Carl A. Gustafson, treasurer; Frederick W. Beach, secretary.

GE Re-equipping Trenton Plant

General Electric Co., Schenectady, N. Y., will not close its Trenton, N. J., washer and dryer plant as previously announced. The plant is being re-equipped to manufacture air-conditioning units. K. F. Housman is plant manager.

Eutectic Builds Third Plant

Eutectic Welding Alloys Corp., Flushing, N. Y., is constructing plant No. 3. The company purchased equipment for high-speed production of new types of electrodes which it recently developed to fill orders for government and

civilian agencies. Included in the new equipment are special furnaces, mixing equipment and wire processing equipment.

Robertson Heads AIEE

Elgin B. Robertson, Dallas, was elected 1953-54 president of American Institute of Electrical Engineers, New York.

Pyle-National Adds Equipment

Pyle-National Co., Chicago, maker of electrical and air conditioning equipment for railroads and industry, acquired the tools, dies, molds, machinery and equipment of M. B. Austin Co., Northbrook, Ill. With this equipment, Pyle-National will make a complete line of electric service entrance fittings.

Cites Growth of Steel Firm

Steel Co. of Canada Ltd., Hamilton, Ont., invested \$150 million in expansion programs during the last 25 years, H. G. Hilton, president, told members of the firm's Quarter Century Club at a meeting in Hamilton. He reported that in 1928 ingot production at Hamilton Works was 398,000 tons annually while today it is five times as great.

Cleveland Quarries Moves

Cleveland Quarries Co. moved its general offices to Amherst, O.

Rust-Oleum Names Distributors

Rust-Oleum Corp., Evanston, Ill., manufacturer of rust preventatives, named as industrial distributors: Griswold-Sohl Automotive Co., Columbus, O.; Mill Supplies Inc., East Greenville, Miss.

Durez Plastics Boosts Capacity

Durez Plastics & Chemicals Inc., North Tonawanda, N. Y., has doubled its capacity for output of phenolic resins which are being used in a relatively new casting process. This is the shell mold or "C" process now in use in about 90 of the country's foundries. The system uses a finely powdered resin such as is used in numerous plastic products.

The shell mold currently is lim-



The Sky Is Their Limit

A laboratory technician at Spitz Laboratories Inc., Philadelphia, drills holes in a slip ring assembly which helps to carry 70 separate electrical circuits needed to operate the Spitz planetarium. Some models require four assemblies

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Why I-R Angle Wrenches are Preferred:

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These easily operated Compressed Air Angle Wrenches are designed solely for the quick application and removal of nuts in confined areas; areas where the use of other types of nut-runners is impossible.

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ited to relatively small castings but an official of Durez said the company is developing new techniques to cut the present cost of the shell mold process.

James Buys Stamping Firm

James Mfg. Co., Ft. Atkinson, Wis., purchased the inventory and equipment of North American Industries Inc., Chicago, producer of metal stampings and hardware. The machinery, mainly large hydraulic presses, will be moved to Ft. Atkinson. Products of the new division will be handled separately from James' regular farm equipment lines.

Gollbach Heads Detroit Group

Fred W. Gollbach, president of Ace Tool & Die Co. and chairman of the board of newly-formed Ace-Central States Machine Tool Co., was elected president of the Detroit Council of the National Tool & Die Manufacturers Association, Cleveland. Other council officers are: Daniel Karpinski, Westlof Tool & Die Co., first vice president; H. E. Hurkett, Pattern Products Mfg. Co., second vice president; H. A. Kramer, Crosstown Mfg. Co., secretary-treasurer.

Shunk Mfg. Expands Plant

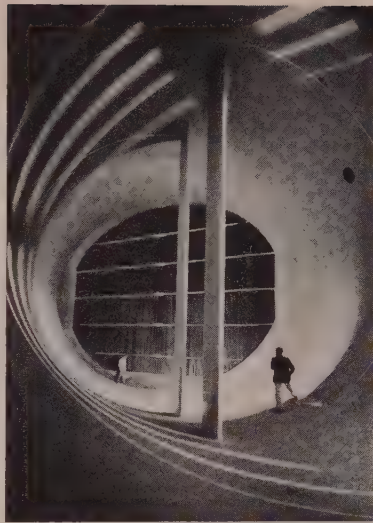
Shunk Mfg. Co., Bucyrus, O., has undertaken a \$400,000 expansion and modernization program. The company makes high-carbon cutting edges for highway and road construction and maintenance equipment.

Graybar Opens Branch Office

Graybar Electric Co. Inc., New York, established a branch at 510 Pearl St., Sioux City, Iowa. E. A. Bartlett is manager of the branch; F. N. Chance, operating manager. Graybar is a national distributor of electrical supplies, equipment and appliances.

Los Angeles Plant Moved

Miller Dial & Name Plate Co., Los Angeles, moved to a \$500,000, 44,000 sq ft plant at 4400 N. Temple City Blvd., El Monte, Calif. The firm produces marking devices, nameplates, and etched circuits.



Forecast: Strong Winds

NACA put into operation another transonic wind tunnel at its Langley Field, Va., laboratory. This view shows the air return passage, looking toward water-cooled fins which remove heat from the air as it passes through. Air in the tunnel tends to get hotter, but must be kept at a constant temperature

Gets Patent on Cutoff Wheel

Electro Refractories & Abrasives Corp., Buffalo, has obtained government patent protection on a new resinoid cutoff wheel that cuts carbon steel, bronze and other hard metals cleanly. Grant S. Diamond, president, says the new cutting tool, containing a filler of insoluble lead salts, would increase efficiency and be more durable, making the wheel stronger and more solid.

Republic Names Kitchen Agent

Republic Steel Corp.'s Berger Mfg. Division, Canton, O., appointed Erskine-Healy Inc., Rochester, N. Y., as a distributor for its steel kitchens. Manager of Erskine-Healy's kitchen sales group is William C. Evans.

Tracerlab Builds on West Coast

Tracerlab Inc., Boston, is erecting a \$100,000 building in Richmond, Calif., to house its Western Division.

Mall Tool Ltd. Building Plant

Mall Tool Ltd., Toronto, Ont., subsidiary of Mall Tool Co., Chicago, started construction of the first unit of a plant. This project will cost \$350,000 and represents

the company's first manufacturing operations at Toronto.

The structure will contain 50,000 sq ft of floor space. It is expected that the building will be completed by August and future plans call for further additions.

Stromberg-Carlson Leases Plant

Stromberg-Carlson Co., Rochester, N. Y., will lease the old Samson United Corp. plant in that city. The patents, tools, dies and other machinery of Samson United will be auctioned. The lease became effective July 1. When alterations are completed, the structure will house Stromberg's National Service Division and also will be used for added plant facilities.

Aluminum Window Firm Expands

Fleet of America Inc., Buffalo, announced establishment of a plant at Des Moines, Iowa, to manufacture aluminum windows. The plant will operate as Fleetlite of Iowa Inc., a subsidiary of the Buffalo company. I. Blake Grosser will manage the new unit.

Rheem Buys Container Business

Rheem Mfg. Co., New York, acquired the business of Pacific Steel-Fiber Drums Inc., and Pacific All-Fiber Drums Inc., manufacturers of fiber shipping containers, with plants in Alhambra and Berkeley, Calif. The purchase includes machinery, equipment and patents covering the exclusive design features used in the manufacture of containers, but does not include land and buildings.

Westinghouse Signs Agreement

Westinghouse Electric Corp., Pittsburgh, and Rolls-Royce Ltd., Derby, England, have signed an agreement providing for technical co-operation between the two companies for a period of ten years. The agreement includes exchange of information in the design, development and production of gas turbine aero-engines and a limited interchange of personnel. While not designed as a manufacturing license agreement, this contingency is covered should it be deemed advantageous in the future.



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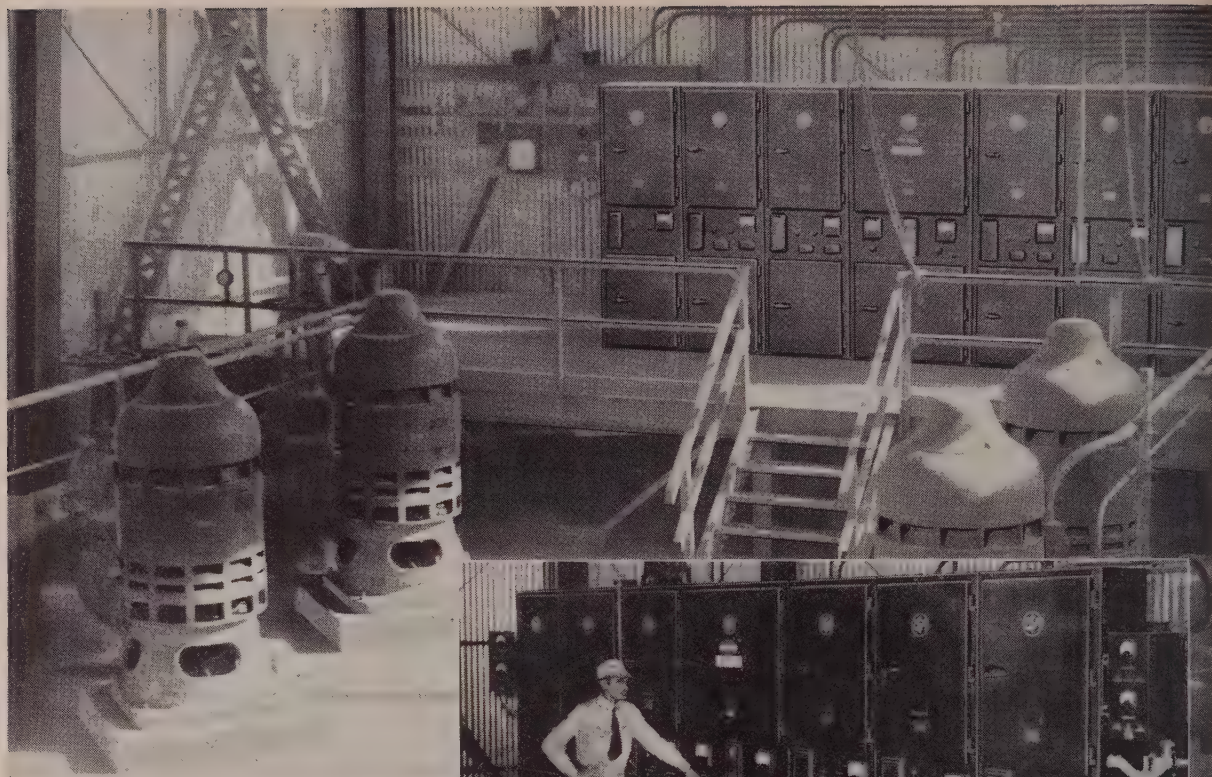
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Excellent hot and cold workability;

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Distant and close-up views of 6 EC&M, Bulletin 1062, 2300 volt Starters and Line Panel for vertical deep-well pumps.

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2300 VOLT STARTERS

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1062 and T9-117 reprint.



When plans call for 2300 volt power, the motor drives connected to this source take on added importance—they are generally considered "main-line" and highly essential to a plant's output. Such drives deserve "all-out" protection and EC&M Type ZHS 2300-4600 volt Motor Starters are designed to provide it.

Illustrated above is a typical installation of these EC&M Starters. Main line contactor is the well-known Type ZHS Magnetic Contactor having high interrupting capacity—ability to provide frequent starts and stops with only routine inspection. Front cubicles are the aligning type; self-contained bus is an optional feature. Safety door interlocks open the contactor circuit and avoid pulling disconnect switches under load. Push button starting brings each motor up to speed with greater skill than human hands could do it.

When making initial cost estimates, get the facts on EC&M High Voltage Starters. Our nearby office will be glad to supply full information on starters which give complete protection.



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Technical Outlook

BEARING ALLOYS—As a result of the discovery that the tin content of aluminum-tin alloys can be increased from 6 per cent, used at present, to 30 per cent or more, by cold working and recrystallization heat treatment after casting, the Tin Research Institute reports that an entirely new range of attractive bearing alloys become available. Properties of the alloys can be further modified by addition of copper. The new alloys have excellent fatigue properties and are softer than the standard type copper-lead bearings.

GETTING BIGGER—Mass produced one-piece car and truck bodies, prefabricated housing and 100-foot light cargo vessels are large molding applications for reinforced plastics based on polyester resins. Here are some other uses manufacturers report: Luggage, furniture, fishing rods, oil storage tanks, machine housings, automobile batteries, piping, body armor, landing craft, arctic sleds and shelters, radomes, plane cowlings and tote boxes.

COST TEAMWORK—Purchasing agents and engineers should talk over suitable standard items when specials are called for. Outcome should keep down costs of materials and parts, stated Vincent de P. Goubeau, RCA vice-president in charge of materials, before a recent meeting of the Standards Engineers Society in New York City.

GROWING COAL—With its sights set on improving western coal, Colorado Fuel and Iron Corp., Pueblo, is removing excess volatile matter in local coal. Char produced by the Petit process is mixed with Colorado coking coal. Test charges in coke ovens and blast furnaces are planned as firm proof of the value of char blending.

ELECTRONIC DECISIONS—In some plants it's now feasible to have electronic computers assemble data, translate work schedules into shop instructions, then measure and feed back actual rates of progress for the next schedul-

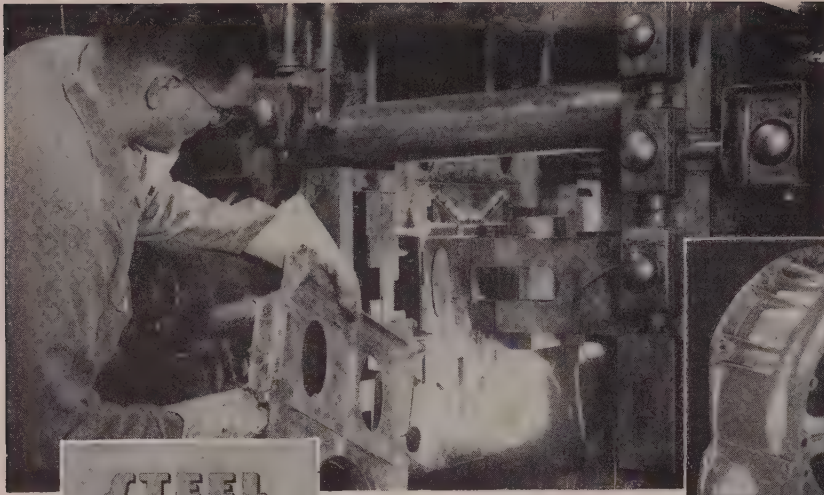
ing computation. For receiving and processing orders, the machines write, compute, sort and select. They also store pertinent information, such as progress of shop orders. So stated Richard C. Canning, assistant research engineer, University of California, on June 29 before the American Society of Mechanical Engineers in Los Angeles.

POLISHING UP—Platinum-base metal pen points can be electro-polished, reports Parker Pen Co., Janesville, Wis. Same process is used by Armco Steel Corp., Middletown, O., on Type-430 stainless-steel grills that go into sand urns and smoking stands.

EARLY AMERICAN LOOK—Antique copper has been added to the color line of console ranges and built-in cooking equipment produced by Chambers Co., Shelbyville, Ind. Heavy copper plating is followed by oxidation and hand brushing of panels. Last step is a patented transparent coating baked on at high temperatures. Reported qualities: Finish doesn't tarnish, discolor, chip, crack, or crackle and is easily cleaned.

KILLED STEEL—Good way of making sure that the aluminum added to a heat of steel will mix properly and perform its deoxidizing and degasifying function has been devised by a technician at Naval Shipyard, Puget Sound, Wash. In the past, aluminum was enveloped by the slag and carried off without blending with the steel. Just before tapping, a burlap sack is now stuffed into the taphole. When the electric furnace is tipped until the slag is above the taphole, the first gush that burns through is steel—not slag.

SKYSCRAPER FURNACE—Aluminum shapes up to 110-feet long will be heat treated in the world's highest furnace (it's as tall as a 13-story building) now being built at Meadville, Pa., by Westinghouse. After heat treatment, aluminum will be plunged into a water-filled pit of the same depth for fast cooling.



Versatility of the die casting process is its greatest asset. Inset shows aluminum die cast clutch housing (right) and torque converter (left) for automatic transmission. Weight: 23 pounds



Let Die Castings Help Keep Costs In Line

Record use of zinc and almost 50 per cent increase in aluminum are evidence that manufacturers are designing for die casting to improve quality and lower cost

By DR. ALLEN G. GRAY
Technical Editor

CHECK YOUR manufacturing operations to see if you are utilizing the full potentialities of the die casting process. Why? You may not only be able to make a conversion that shows a factory saving, but by redesign there's a good chance of ending up with a part even better suited to the functions that it has to carry out than was the original.

Die castings are coming more and more into the production picture not because they possess some one desirable quality to a pre-eminent degree but because they combine so many desirable properties in a well-rounded fashion. For this reason they are helping manufacturers improve the appearance and performance of products without increasing costs.

Here Are Figures—The die castings industry will increase its use of zinc and aluminum this year to the highest point in history, barring unforeseen changes. Through

the first quarter, zinc die castings were at a going rate of 40 per cent above last year and aluminum die castings were 46 per cent ahead. Projected on a yearly basis this rate will bring zinc up 8 per cent above its all-time high although aluminum would be 46 per cent above its peak. Industry representatives are predicting that production of die castings may double by 1955.

A survey recently made by the Penton Publishing Co. of 134 manufacturing plants in the Cincinnati, O., area showed that 25.3 per cent are now using die castings as parts in the manufacture of their products. Of the 74.6 per cent not now using die castings, some 23 per cent indicated that there were parts in their products which could be made of die castings assuming that costs were in line.

Growth — Aluminum's strong points are low material cost and light weight. Light weight is par-

ticularly important in many applications. Biggest boom to aluminum die castings has been modern automatic transmissions of the automotive industry. Here, weight is a prime consideration in the design of large or rotating parts and aluminum combines the advantages of light weight and suitability for die casting.

One auto manufacturer now uses two aluminum die castings totaling 23 pounds for a torque converter housing and clutch housing. These parts are subjected to great vibrational stresses and must withstand the jarring and jouncing of an automobile over thousands of miles. In addition to the weight saving, the die castings give economies in machining costs, as for example, casting of the long oil holes in the parts.

There are firm indications that die casters are looking in the direction of larger and larger die cast parts for market expansion. One producer is experimenting

DIE CASTING PRODUCTION

	Zinc and Aluminum Die Castings	
	1952	1953 (est.)
	TONS	TONS
Zinc		
Total Job-shop ...	133,000	136,000
Captive Producers	70,000	90,000
	203,000	276,000
Aluminum		
Total Job-shop ...	63,750	92,500
Captive Producers	14,000	16,500
	77,750	109,000
American Die Castings Institute		

WHERE DO DIE CASTINGS GO?

Here's A Breakdown Of Production At Doehler-Jarvis For First Quarter Of 1953.

Builders' Hardware, Bathroom, Plumbing, Oil Burners, Air Conditioning.	3.5 per cent	Electrical parts—Fans, Meters, Motors, Drills and Tools	6.8 per cent
Airplane parts and appliances, Railroad Equipment, Outboard Motors, Gasoline Pump & Service Station Equipment, and Misc.	1.9 per cent	Household Appliances—Vacuum Cleaners, Sewing Machines, Washing Machines, Irons, Mixers, Dish Washers, Radio, Television, Record Players, Cooking Utensils, Refrigeration.	13.7 per cent
Automotive parts.	42.6 per cent	Office, Store & Factory Appliances—Adding Machines, Typewriters, Dictaphones, Pencil Sharpeners, Postage Meters, Parking Meters, Staplers, Watchman Signal & Alarm Systems.	4.8 per cent
Cameras, Projectors, Binoculars, Toys, Microscopes, Guns, Fishing Tackle, Scales, Clocks, Cutlery, Razors, Dispensers, Novelties, Flashlights, Medical & Dental Appliances and Textile Parts.	6.0 per cent	National Defense.	20.7 per cent

with dies to produce 70-pound aluminum die castings and zinc weighing up to 200 pounds.

Volume Ratio—Last year there were about 40 to 60 pounds of zinc die castings and 6 to 8 pounds of aluminum die castings per car; '53 models use about the same amount of zinc but close to 20 pounds of aluminum die castings per car. On a volume basis the ratio is 2.4 to 1 of aluminum to zinc and many auto people have set up a volume-price ratio to determine which metal they will use.

Doubtless, economic relationships are involved. The facts are that a part which weighs one pound in aluminum weighs 2.4 pounds in zinc and only 0.7 pound in magnesium. To this extent then, metal price is a major determinant. Market stability is another factor which may affect thinking of procurement engineers not willing to take a chance on being caught short, pricewise. Zinc varied in price 21 times in the 42 weeks from June 1, 1952, to April 1, 1953. Competitive materials—aluminum, steel, cast iron—move infrequently, pricewise.

Design For Use—But other factors enter in, too. Precision Castings Co. make more than 30 separate transmission parts out of aluminum die castings—easily the greatest use of die castings in a comparable mechanism. The development points up a greater reliance on die castings by automotive engineers who specify materials and parts. The original design of these parts was made so that die casting could be used to reduce the component cost.

Light weight, good heat dissipation, fine finish and close dimen-

sional tolerances obtainable in aluminum on complicated castings were factors that entered into its selection. The job required sufficient die making skill and casting technique to produce castings requiring highly complicated cor-

ing. Die casters report that tolerances were held closer than anticipated, requiring only thin machining cuts on some surfaces to attain final dimensions.

Fills the Bill—The stator, one of the more complicated parts, re-



Drilling setup for M-52 fuse body at Precision Castings Co. Inset shows gate with four M-52 castings on it



Auto horn is formed by two zinc die castings at Doehler-Jarvis. Machine can turn out 300-350 parts per hour



Finishing requirements such as bright chrome plating on a highly buffed surface may tip the scales for zinc

quires a die on which the entire outer portion is movable. By making it possible to move the outer portions in and out, it became possible to cast eleven radial-helical fins accurately to final shape. The die is as large as that for any other part, although the part itself is only of moderate size.

The impeller cover, in addition to acting as a cover also serves as a flywheel when the transmission is in use. It is important that there be as little inertia as possible to overcome when the unit starts to move. Also, the impeller is filled with oil which is inclined to heat up during functioning. The light weight of aluminum takes care of the inertia. Aluminum's good heat conductivity carries away much of the heat and dissipates it through the fins on the outer surface of the cover.

Still First — Zinc base alloys continue to be used in the greatest quantities of all the others, representing over 60 per cent of all die castings produced. They attain this wide usage because they are easily cast at high speed, they have good mechanical properties and they can be readily and economically finished. All these factors result in low ultimate costs.

There are, however, some limitations to the use of zinc die castings. They cannot be used where they are subject constantly to tem-

peratures beyond 200°F. Zinc alloys suffer loss of impact strength at temperatures below zero. This factor must be considered in the design of a part. Other factors to be considered: Relative low creep strength and high expansivity of zinc alloys.

Auto makers use the bulk of zinc base die castings in radiator grilles, ornaments, radio grilles, trim, stone shields and the like. There are also functional parts such as carburetors and fuel pumps. The surface finish and soundness of the zinc die castings must be of the highest order.

Properties—But what are the characteristics of aluminum die castings accounting for their increasing use across the board in practically all industries? Here are some: 1. Low specific gravity; 2. Corrosion resistance; 3. Retention of polished luster for long periods of time; 4. Freedom from dimensional changes; 5. Retention of properties at sub-normal temperatures; 6. High thermal and electrical conductivity. Aluminum die castings now represent about 30 per cent of die casting consumption.

Average specific gravity of aluminum die castings is 2.8 which is compared with 1.8 for magnesium alloys. For many applications, especially small parts, this weight differential between these two metals becomes negligible.

PROPERTIES AND CONSTANTS OF TYPICAL ZINC AND ALUMINUM DIE CASTING ALLOYS

	Zinc	Aluminum
Charpy Impact Strength, ft. lbs., ¼ x ¼ in. bar	43	2.5
Tensile Strength, psi	41,000	34,000
Elongation, % in 2 inches	10.0	2.0
Specific Gravity	6.8	2.7
Weight, lb. per cu. in.	0.24	0.10
Shearing Strength, Psi	31,000	26,000
Melting Point, °F	717	1145
Thermal Conductivity, CGS Units	0.27	0.27
Thermal Expansion, in./in./c	0.0000274	0.000021
	Dollin Corp.	

Finishability—The ability of a part to take and hold a bright polished luster is important in many processes. Advantage is being taken of this property in finishing of aluminum die castings for both a highly decorative and low cost finish. Die casting producers are working hard to find new aluminum die casting alloys that will buff to higher luster than the present alloys containing sizable amounts of silicon. Zirconium and titanium additions may even come into the picture as additives to aluminum die cast metal to improve the quality and permanence of the buffed finish.

Another property being looked at in connection with new aluminum die casting alloys is improved anodizing characteristics and dyes and pigments to give decorative effects to anodic coatings.

Stability — Aluminum die castings are remarkably stable. They are not subject to changes in dimensions or properties on aging. They will also withstand extremely low temperatures without affecting original ductility. For this reason aluminum die castings have found extensive use in aircraft, refrigerators and similar equipment where low temperatures are encountered.

Die casters are certain that aluminum die castings are going to play an increasingly important role in the future design and construction of automobiles. Here's where they are looking: Side and front frame members, decklids, dash boards, door frames, window garnish molding, and many other places. In most of these die cast frame applications a steel sheet will be hemmed around the die

STANDARD CAST TOLERANCES FOR DIE CAST PRODUCTS

	Zinc	Aluminum	Magnesium	Brass		Zinc	Aluminum	Magnesium	Brass
Minimum tolerance for dimensions less than 1-inch in length—that are not affected by the parting line.	*—0.001*	*—0.0015*	*—0.0015*	*—0.003	Minimum size for cored holes.	0.062	0.094	0.094	0.157
Additional tolerance for each additional inch of length.	*—0.001	*—0.001	*—0.001	*—0.001	Minimum draft per inch for cored holes.	0.005	0.010	0.010	0.020
Minimum tolerance in dimensions affected by parting line and gulls.	Small dies and units *—0.005	*—0.005	*—0.005	*—0.005	Maximum depth for cored holes.	5 x dia.	3 x dia.	3 x dia.	2 x dia.
	Large dies *—0.010	*—0.010	*—0.010	*—0.010	Minimum draft per inch of depth for inside cast walls.	0.010	0.015	0.015	0.015
Minimum cast wall thickness	Small Castings 0.040	0.050	0.050	0.060	Minimum flatness tolerance per linear inch	0.0015	0.0015	0.0015	0.0015
	Large Castings 0.078	0.060	0.090	0.110					

*—0.003 minimum up to 3" is normal commercial practice.

—0.001 and 0.0015 shown can be usually accomplished at additional die and piece part cost.

cast frames for surface. Die casting of aluminum engine blocks is on the board.

Growing Slowly—Since the last war, consumption of magnesium-base die castings has increased although most die casters have been disappointed with the general acceptance of this alloy. In general, manufacturers have been timid about using magnesium as a substitute for aluminum despite the fact that since 1945 there have been two occasions when magnesium was cheaper than aluminum.

Die casters will tell you, however, that as a rule magnesium costs are usually higher than aluminum. Magnesium die castings must be protected in some way whereas aluminum parts can be used, when necessary, without any protection. Magnesium cannot be used where exposed to severe corrosive conditions and this militates against it for such applications as automobile cylinder blocks, where aluminum is in the limelight. Magnesium can stand

less wear and take less stress than aluminum.

During acute shortage of aluminum, a number of aluminum die cast applications converted to magnesium because of its greater availability. However, in the vast majority of the cases, when the shortages were alleviated parts were returned to aluminum.

Lighter—There are some definite advantages to magnesium: Most outstanding is its ultralightness. On an equal volume basis magnesium is less than one-fourth the weight of steel and two-thirds the weight of aluminum. This light weight is important for saving power and increasing the efficiency of machines that have moving parts and for decreasing operator fatigue due to manual handling of equipment. Another advantage: Increased payload in the field of transportation.

Magnesium has important characteristics other than lightness. It has relatively high thermal conductivity and good energy absorb-

ing qualities. Despite its low modulus of elasticity it has good rigidity.

Magnesium die cast metal does not dissolve steel in contact with it as does aluminum. Thus, the hot chamber casting machine used for zinc can be used for making magnesium die cast parts.

Copper Base Die Casting—Pressure die casting of copper base alloys offers industry parts of materials capable of exceptionally high strength, hardness, wear and corrosion resistance coupled with the accuracy, intricacy and facilities of the die casting process. These properties make for uses in many applications where die castings of other metals are unsuited.

Brass alloys currently used are capable of strengths and hardness comparable with mild steel. One of these alloys has exceptional wear resistance. It has replaced steel and aluminum bronze in some applications. At present the use of copper-base die castings is limited to a variety of small and medium-sized parts that are sub-



Automatic buffing machine in operation on zinc automotive grille. Parts are cleaned and buffed before plating



Assembling die for casting machine. New die metals promise to expand the use of brass and copper-base alloys

COMPARATIVE OPERATIONS FOR DECORATIVE FINISHING OF DIE CASTINGS

Operation	Zinc	Aluminum	Magnesium
Polishing	Parting line only	Parting line and spot polish of die cracks	Parting line and spot polish of die cracks (Fire hazard)
Buffing	All decorative surfaces	All decorative surfaces (Higher than zinc due to polishing)	All decorative surfaces (Higher than zinc due to polishing)
Plating Racks	Steel, copper or brass	Aluminum contact tip if near finished surface	Aluminum contact tip if near finished surface
Plating—Zinc	No	Yes	Yes
Immersion Required	No	Yes	Yes
Plate Thickness	0.0005" inside	0.00075" inside	0.00075" inside
Copper + Nickel	0.0008"-0.0015"	0.00125"-0.002"	0.00125"-0.002"
Nickel Buffing	outside	outside	outside
Chromium Plating	5-10%	100%	100%
Chromium Buffing	Yes	Yes	Yes
Rejects due to porosity, blisters, etc.	5-10%	5-10%	5-10%

ject to severe stress and wear in service.

Doehler-Jarvis produces brass die castings for making the Camloc Fastener, a quick operating fastener widely used in aircraft. Many thousands of these are produced a day in an interchangeable die which contains 20 impressions. The blocks are interchangeable in multiples of four. The original design used an aluminum forging with a stainless steel cap on top of it. The die-cast lock wears better than the original design and is much cheaper.

Look for Progress—There's one outstanding problem in die casting copper base and higher melting point metals: Finding a suitable die material that will give economical die life. When this problem is solved, and die casters think they have some real leads in that direction, there will be nothing to stop die castings of these alloys from assuming a foremost position among metal fabrication processes.

There is an air of optimism around the possibilities of pure molybdenum or moly alloys as a die material for producing high temperature die castings. This kind of high temperature metals is solid at temperatures where most metals are a pool of liquid. A look at the physical properties of molybdenum shows that it has two other properties that are valuable for die casting dies: High

thermal conductivity and low thermal expansion. Perhaps it holds the key to undreamed of possibilities in the die casting process.

Don't Be Misled—It's wrong to assume that you can get aluminum and magnesium die castings at a lower price than zinc, based merely upon the market values of the metals involved. There are production costs that must be considered which may counteract the difference in metal cost. Undoubtedly, there are many parts, particularly large castings, where aluminum or magnesium are more economical than zinc. But don't be surprised to find that in many cases die casters can supply zinc die castings at a lower cost than those of the same part made from aluminum and magnesium.

Here are a few reasons why this is true. There is considerable difference in the die life and also the type of finish that can be obtained on aluminum and magnesium die castings on the one hand and zinc on the other. Most parts produced in zinc die castings require no polishing operation. The same parts in aluminum and magnesium will require some cutting down by polishing or strapping before buffing.

Consider This—It follows then, that if aluminum or magnesium is being considered, the design of the part must be such as to not contain any fine ornamental engraving since it would not be pos-

sible to polish such an engraving without destroying the design. Designs which have a sharply recessed area, even though the surface is smooth, are also impractical in aluminum and magnesium. Why? Because a polishing wheel or abrasive belt cannot reach it to cut it down before buffing.

In the production of zinc die castings the composition of the steel used in making the die is not critical so long as a sound piece of steel is used that is free from defects and inclusions. At the melting point of the zinc alloy, the steel is not adversely affected by the thermal reactions produced in the casting process.

With aluminum or magnesium the story is different. With their melting points in a higher range, the problem of getting a steel which will last indefinitely has not yet been solved. Under the best conditions heat checks may develop after a run of 25,000 or 50,000 pieces depending on the design and size of the piece.

Must Be Polished—These heat checks are fine crevices in the die which are reproduced in the form of fine ridges on the surface of the casting. The design of the part must be such as to make it possible to remove these ridges by a polishing operation, since it would not be economically practical to replace the die as soon as these slight ridges show up on the casting. If a polishing operation is in the cards, then the die may be expected to last almost as long as a zinc die.

The rate of production of zinc die castings has been stepped up considerably during the past few years. Now 300 to 350 parts per hour on the average zinc part are not unusual. On thin wall and simple castings, rates of 500 per hour are being chalked up regularly.

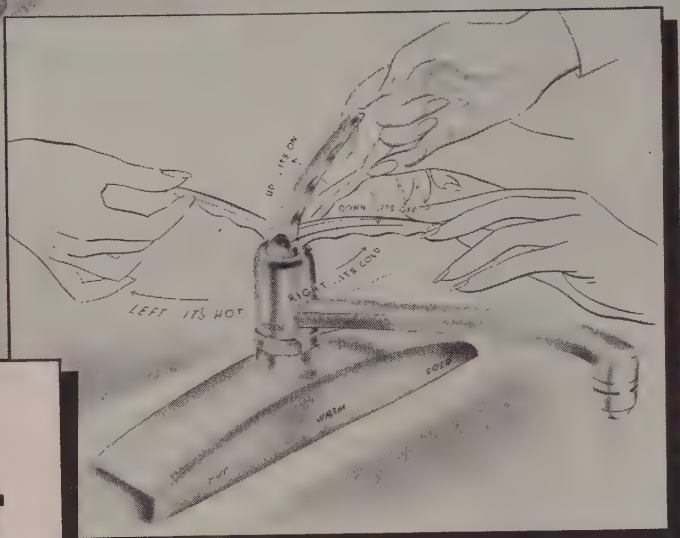
Slower—With the higher melting points of aluminum and magnesium there are definite thermal factors which prevent this high rate of production. Wear and tear on the die parts such as cores and slides also make it necessary in the case of aluminum and magnesium to resort to more lubrication. This results in castings of poorer surface finish than are ob-

(Continued on p. 163)

Moen Single-Handle Faucet, made by Moen Valve Co., Division of Ravenna Metal Products Co., Seattle 5, Washington.

Faucet maker finds **unit cost** more important than cost per pound

This Moen Faucet is unusual. First, its design represents a new idea in faucets so far as we know. If we are wrong, we will welcome the correction. But in any event, this modern faucet is selling like mad; people really want its convenience, its simple operation, its one-hand control. The second unusual thing about the faucet is that the spout is made of Admiralty Metal, supplied by Revere. This metal was chosen by Moen after consultation with the Revere Technical Advisory Service, which pointed out the qualities of Admiralty from the standpoints of bendability, and plating characteristics. Everything considered, the "more expensive" Admiralty turned out to be less expensive in the end, and more satisfactory both to the Moen Valve Co. and to its customers. The faucet also uses Revere Free-Cutting Brass Rod for interior machined parts, this again being chosen for workability and corrosion resistance. Service to Moen and to many other indus-



Sketch showing operation of Moen Faucet, which can be operated by one hand, giving water at the desired temperature at any rate of flow. You can change volume without changing temperature, or change temperature without changing volume, or select the desired temperature before turning on the water. Available in various styles and types.

tries in the Mountain State area is of course provided by the Revere sales, technical and mill personnel on the Pacific Coast. Similar services are of course available from Revere everywhere in this great country. To obtain the Revere services, see the nearest sales office.

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Oxygen-Enriched Blast Steps Up Bessemer

Advantages include reduction in blowing time, heavier scrap charges and larger output. Report on carbon lined blast furnaces favors the use of carbon brick below mantle

SEVERAL European bessemer steelworks now are using throughout the blow a blast enriched to 30 per cent oxygen which gives, so far as nitrogen in the finished steel is concerned, results comparable with the carefully controlled scale or ore-blowing process. Enriched oxygen blast shortens blowing time 30 to 40 per cent, increases the rate of output 15 to 20 per cent, enables a greater charge of scrap to be carried and the economic advantage of the basic bessemer process is fully retained.

These revolutionary facts were presented at the general meeting of the American Iron and Steel Institute, New York, May 27-28 by W. C. Bell, joint director, research and technical development, Stewarts and Lloyds Ltd., Corby, Northamptonshire, England. It was the conviction of the author that within two or three years few of the major steel plants in Europe will be producing basic bessemer steel by the established practice.

This particular application of oxygen, apart from the economic attraction mentioned, has made available a range of basic bessemer steels of what might be termed "medium" nitrogen content.

This is undoubtedly a considerable advance but it is not the end point of this development. A special method of the application of oxygen has been developed in Belgium and Germany with the object

of reducing still further the nitrogen content of the finished steel. This is blowing throughout the blow, or for the major part of it, with a mixture of 60 per cent oxygen of 95 per cent purity and 40 per cent steam. This oxygen/steam mixture is approximately thermally equivalent to air. The steel thus produced has a maximum nitrogen content of 0.0025 per cent and, on cold working and aging, hardens even less than normal open-hearth qualities, since these generally have double the nitrogen content. Oxygen contents in the steel are still of the same order as an open-hearth steel, and hydrogen has so far given no trouble.

The oxygen consumption, using this steam/oxygen method of blowing, is approximately 1500/2000 cu ft per ton of steel produced compared with under 1000 cu ft per ton with oxygen enriched air blowing. Less scrap can be carried in steam/oxygen blowing, so that the steel thus produced is slightly more expensive than ordinary air-blown basic bessemer steel, but, in general, the cost of steel production by this process is still under that of the open hearth.

The ability to control the nitrogen content to any required figure, employing either the enriched oxygen blast or the steam/oxygen practice, gives to the basic bessemer process a new flexibility, not possessed by other refining opera-

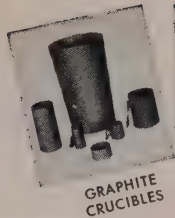
tions. It is now possible, by these methods, to produce steels by the basic bessemer process which are the equal in chemical and physical properties, and in some respects superior, to equivalent grades made by the open-hearth process.

As a direct result of these developments, the bessemer process will replace the open-hearth process in equivalent steel grades at those locations where a high iron use from native ores provides an economic advantage. There are many such locations in Europe.

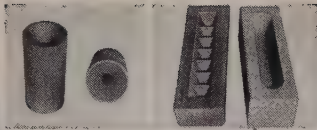
The competitive position of the two processes in an equivalent steel quality standard is still restricted, however, to the normal grades of bessemer steel production, that is, low-carbon steels. The balance of production within this range will now generally swing in favor of the bessemer process, and the next endeavor undoubtedly will be to extend the range of steel grades produced by bessemer refining. It would appear that a new steelmaking process will evolve, combining, in the one vessel or furnace, bessemer refining by these latest techniques plus the present open-hearth finishing operations necessary to produce high carbon, and possibly the lower alloy steel grades.

Other papers presented at the general meeting of the institute follow:

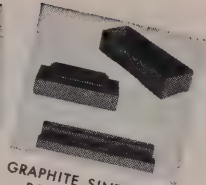
Design and Construction of a Carbon-Lined Blast Furnace by J.



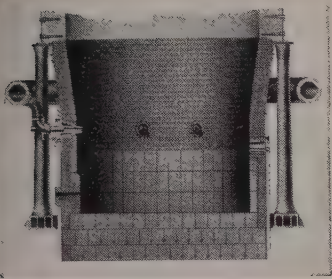
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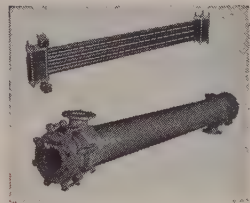
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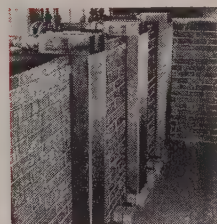
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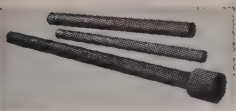
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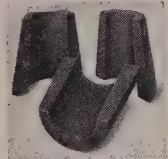
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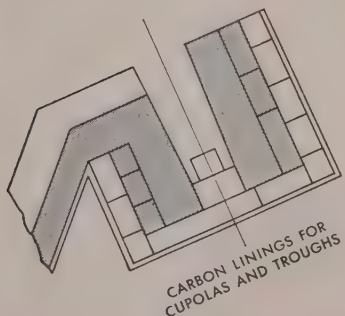
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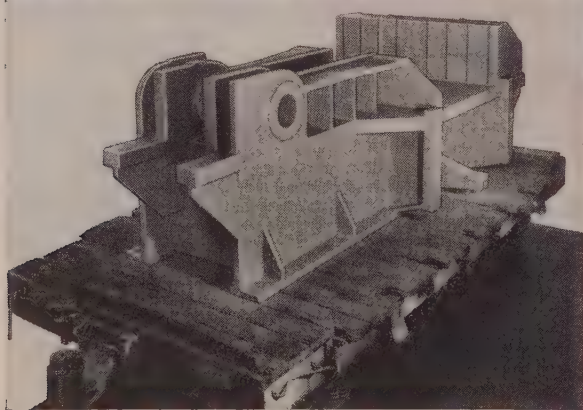
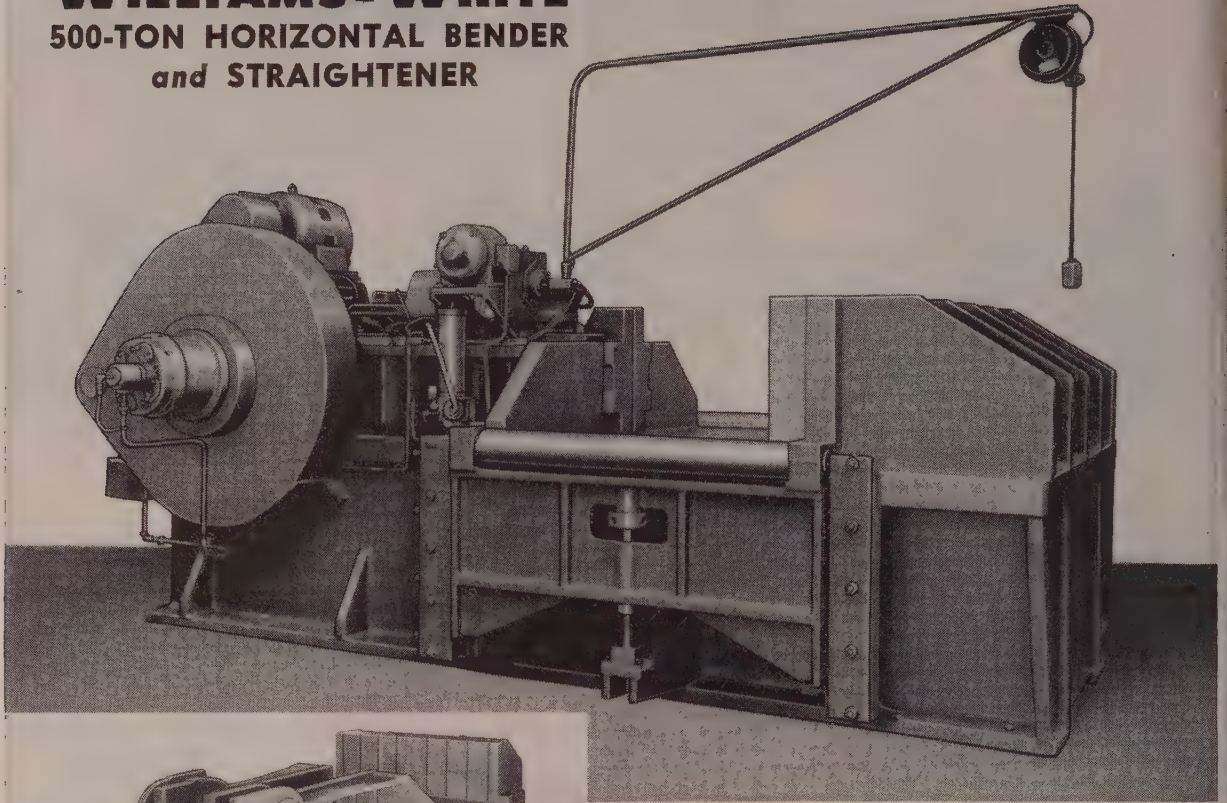
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Remote control is afforded by the reel and cable suspended conveniently above the press, enabling the operator to stand near the end of a long beam if necessary and operate the press. Beams are straightened or curved without preheating. The view at left shows the heavy welded steel base.

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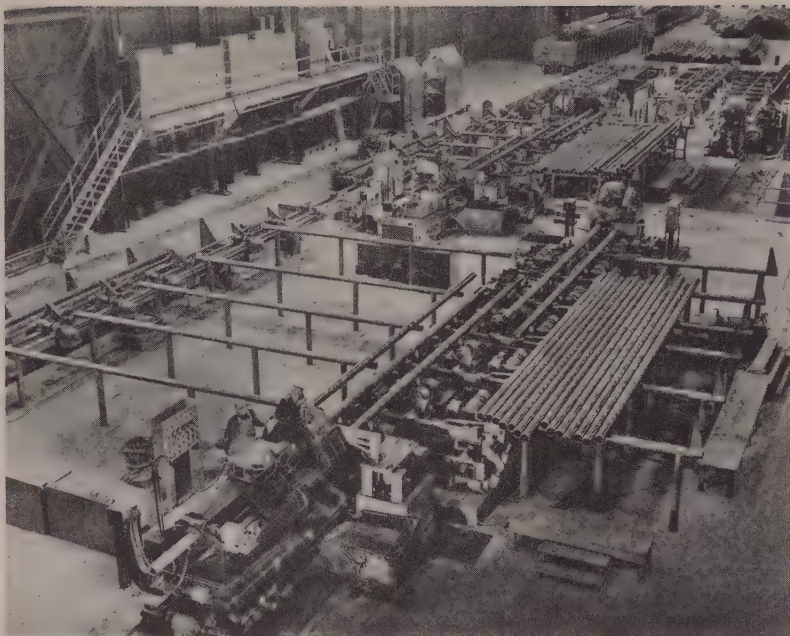
M. Stapleton, assistant to vice president, blast furnaces, and W. S. Debenham, research associate, United States Steel Corp., Pittsburgh. Adoption of a carbon lining for the hearth wall and bosh should provide the most positive means of obtaining increased production by changes in the lining in this region. However, to insure the maintenance of this production advantage throughout a campaign, the wear of the lining in the lower stack region must be at a minimum and must remain uniform.

Evidence of no lining failure strongly suggests that carbon has no place in the upper zones of the inwall lining and casts serious doubts as to whether it has any advantages in the lower zones just above the mantle. Carbon in the central section of the hearth contributes nothing to furnace capacity or the prevention of breakouts, and it has yet to be demonstrated that carbon is superior to hard-burned superduty brick in minimizing salamander formation.

The authors detail the description of the lining procedure and point out that during the first complete month of operation the average daily tonnage broke a record of long standing. The furnace operated smoothly with almost a complete absence of hanging or slipping and had a coke rate of 1589 pounds per ton of iron based on a daily output of 1412 tons.

The authors express confidence of the outcome of the carbon lining below the mantle. They directed attention to the benefits to be derived from increased furnace capacity, smoother operation and the elimination of bosh cooling plates. In the use of carbon brick in the stack lining there is uncertainty but it is an area worthy of exploration because of potential advantages.

Ultrasonic Testing of a Large Engine Crankshaft by W. A. Black, chief electrical engineer, Steel and Tubes Division, Republic Steel Corp., Cleveland. Since the introduction of the ultrasonic tester, known as the Reflectoscope, to the steel industry in 1945 its use for detecting internal defects in blooms, billets, bars, slabs, welds and castings has spread rapidly. For preventative maintenance pur-



New Line on Threading Production

Threading machines at the entry end of Pittsburgh Steel Co.'s fastest finishing line for oil country casing can thread both ends of a casing section in 75 seconds. The company's new \$2 million casing finishing department is located at the Allentown, Pa., works. Fed to threaders by automatic tables, casing moves through unbroken operations sequence at rates that reach 800 pieces in 8 hours

poses it has located defects in shafts, containers, trunnions, blast furnace bells, rolls, spindles, pinions, etc.

One of the most dramatic instances in which this tester has been used to anticipate failures recently occurred at the Cleveland plant of Republic Steel Corp. in connection with a 25,000-hp steam engine for operating the 44-inch blooming mill. Breakage of any one of several parts of this unit could unleash an explosion and flying steel of devastating magnitude; and such a condition might have become an actuality if it had not been for the ultrasonic tester, for two extensive stress cracks were hidden in a corner of a bearing shoulder and completely covered by the crankthrow. The author describes in detail how lives undoubtedly were saved, production maintained and major damage averted.

Use of the ultrasonic tester merely for the inspection of purchased parts can be extremely valuable in some instances. Its use before machining can sometimes avoid machine work on defective

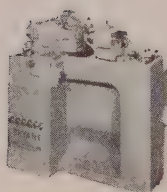
stock. In some instances, it has permitted the machinist to adapt defective stock to certain uses because of knowledge of the internal condition. By locating a defective section in a lower stressed zone, the machinist can make a perfectly satisfactory article. Without knowledge of the internal condition, the stock would become scrap and the machining labor invested in it a total loss.

Problems in the Disposal of Phenol Wastes in Coke Plants by G. E. Muns, manager, fuel division, and C. V. Thompson, superintendent, coke plant, Crucible Steel Co. of America, Midland, Pa. Regulatory measures designed to restrict the discharge of phenolic wastes into public waters have created a problem in the disposition of coke plant wastes. This has received serious attention from the industry and a major degree of reduction has been achieved.

It is popularly believed that coking operations are the principal producers of phenolic wastes. This is a fallacy. Chemical industries, oil refineries and manufacturers of synthetic resins produce important

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internal grinding



no. 1309-W

Finishes 2 bores and a taper straight and concentric. 2 wheelheads are used on this semi-automatic. Max. traverse stroke, 6". Max. grinding length, 3½".



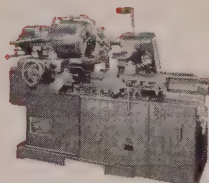
no. 1109

For high production of small bores where accuracy of size and finish are required. Max. traverse stroke, 6". Max. grinding length, 3½".



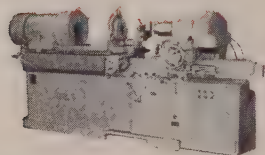
no. 2209

For precision and high production grinding of ball bearing races, gears, rolls, bushings, etc. Max. traverse stroke, 6". Max. grinding length, ¾".



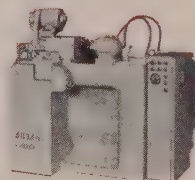
no. 1116

A general purpose hole grinder for tool room, small shop, or general production. Maximum traverse stroke, 20". Maximum grinding length, 8".



no. 1416

Specially designed for grinding bores in long work, such as machine tool spindles. Maximum traverse stroke, 20". Maximum grinding length, 8".



no. 1209

A fully automatic, high production machine for small and medium bore grinding. Max. traverse stroke, 6". Max. grinding length, 3".

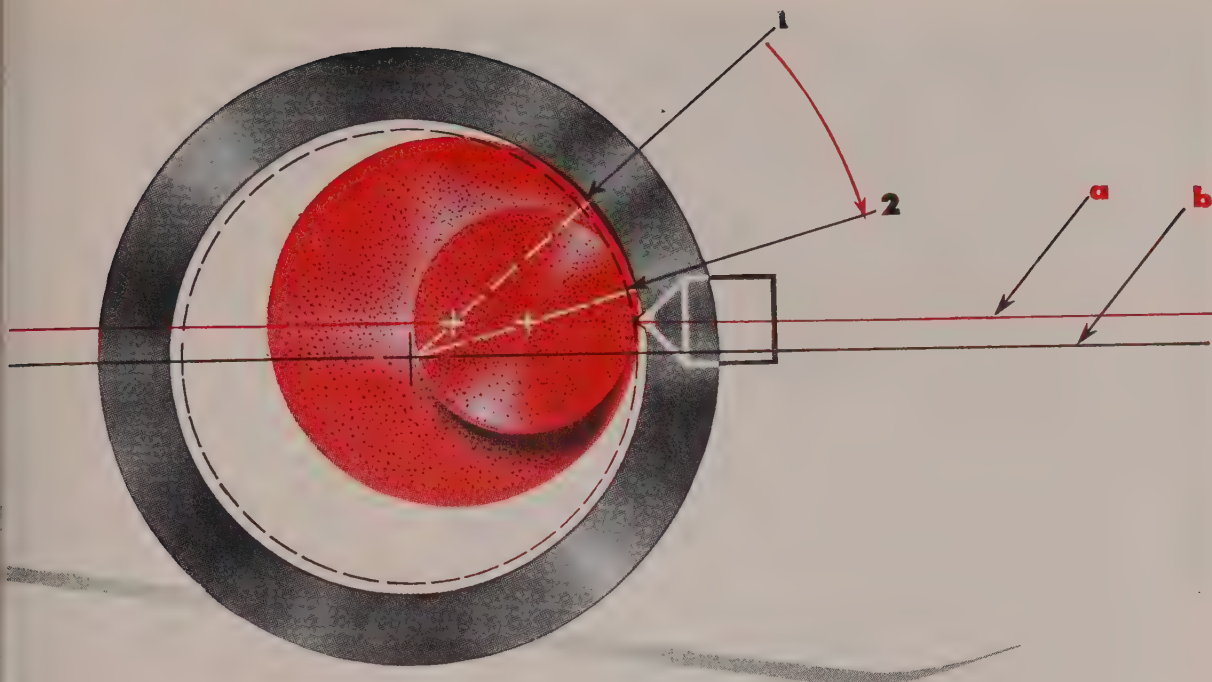


no. 1460

For production or single piece hole grinding on parts up to 60" diameter. Max. traverse stroke, 21". Max. grinding length, 16".



Write for "Alignment" booklet which gives complete details on this interesting subject. Also ask for booking form on new sound, color movie—free showings arranged for engineering groups.



IF the internal grinder is to generate straight holes within precision tolerances, on a production basis, the various elements of the machine must be properly aligned. The axis of the work, the axis of the wheel, and the diamond must be in a plane parallel with both traverse and cross feed ways. Then the direction of feed will coincide with the line from the center of the workpiece to the point of contact between the wheel and the work, and the wheel will be dressed in line with its point of contact with the work regardless of the size of the wheel.

In the illustration above, these requirements are not met because the work center "b" is below plane "a" established by the wheel axis and the diamond. The drawing shows the wheel at its largest diameter (new) and also at its smallest diameter (worn). The difference between center heights "a" and "b" is constant during the life of the wheel. The position of the diamond remains constant for the life of the wheel. When the large wheel is dressed by the diamond it will contact the work at a point established by a line from the center of the work through the center of the wheel (position 1). When diamond sizing, the work, or wheel, is fed to a predetermined position. As the wheel wears down, it will continue to contact the diamond at the same point during dressing, but the small wheel will contact the work at position 2 and the size of the finished hole will be substantially smaller.

As the wheel wears, the point of contact between wheel and work will move gradually from position 1 down to position 2, and the size of the finished hole will become progressively smaller. This is one of the reasons that some internal grinders, when set up for diamond sizing, will not hold size during the life of the wheel. Many operators attempt to compensate for this error by constantly adjusting the diamond. The correct remedy would be to bring the axis of the work, the axis of the wheel and the diamond all into a common plane parallel with both traverse and cross feed ways. Finish size will then be correct regardless of wheel diameter.

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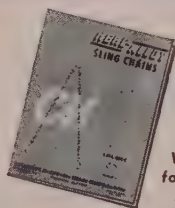
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DANGER ZONE

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Hundreds of plants like the one shown above* are using Herc-Alloy Sling Chains. Greater safety is their big reason for doing it. But there are other factors too. Herc-Alloy is economical because of its long service life. Then too, the use of alloy steel permits a weight reduction that helps prevent worker fatigue. These advantages are worth thinking about. Those who do consider them seriously generally adopt safe Herc-Alloy Sling Chains for their plants.

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quantities. Use of disinfectants in hospitals and private homes adds further to stream pollution.

Methods being investigated for the removal of phenols from still wastes that arise at coke plants include the following:

1. Chemical oxidation. This involves the use of chlorine, ozone or chlorine dioxide, and pilot plant work indicates the cost of complete removal of phenol by these means would be prohibitive.

2. Activated carbon. While results do not show much promise this means could result in a practical method of reduction.

3. Biological oxidation. Removal of 99.7 per cent of phenol diverted through sanitary sewers was accomplished by an activated sludge treatment at the Gary plant of the United States Steel Corp.

A program of minimum treatment of phenolic wastes from coke plants to which representatives of all steel companies in the Ohio River Valley have agreed, has been offered to the Ohio River Valley Water Sanitation Commission. It is believed that adoption of this minimum program by all individual companies will result in further reduction of phenols going to surface waters.

Expanded Blast Furnace Slag for Use As Light Weight Concrete Aggregate by R. W. Miller, practice engineer, blast furnace department, Youngstown Sheet & Tube Co., East Chicago, Ind. Expanded slag is the foamed or expanded product resulting when molten slag is treated by the application of a limited quantity of water. A relatively dry cellular clinker is formed which is subsequently crushed and screened to aggregate graduation.

A widely used method of expanding slag is one in which a controlled flow of water is applied directly to a stream of molten slag. This is called the pit process. When the pit is adjacent to the furnace, one or more high pressure jets of water, with or without compressed air, impinge on a stream of molten slag and the product falls into a dry pit. Compressed air may be added to the jet of water to aid in breaking up the stream of molten slag and the expanding and cooling of the slag. Regulation of the water and air is controlled by the pitman in order to expand the slag to a clinker properly. Too much wa-

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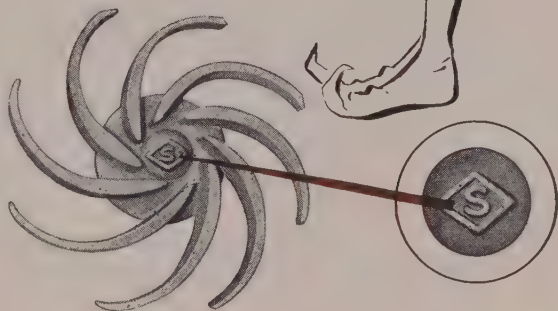
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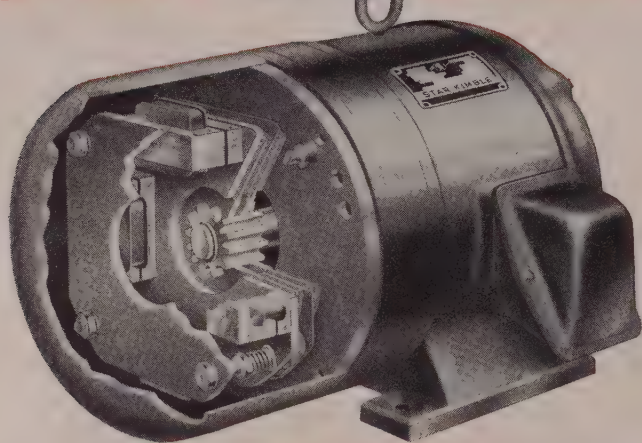
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Face Lifting at Pitt Steel

Cold rolling mill at Pittsburgh Steel Co., Allentown, Pa., is getting a complete face lifting. Included is erection of a traveling bridge crane, addition of miscellaneous rolling and finishing equipment. Here a 30-ton Lorain Moto-Crane uses a 40-foot boom to lift and set one of two 65 x 6-foot girders for the overhead crane

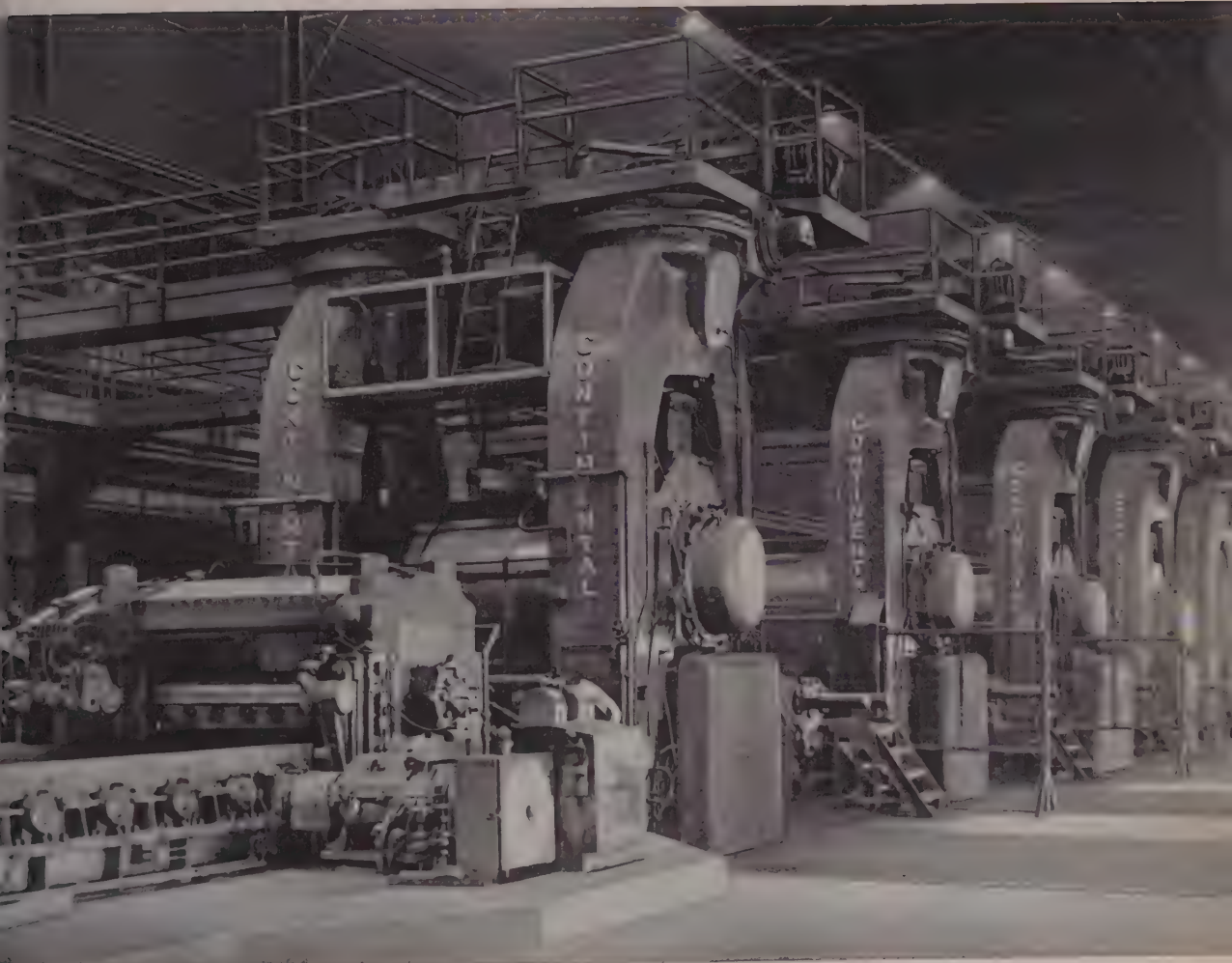
ter would granulate the slag.

Expanded slag clinker must be crushed and screened in plants which may have primary and secondary crushers, and a series of mechanical screens where the material is separated into commercial sizes. The fine aggregate may weigh between 40 and 75 pounds per cubic foot and coarse aggregate between 30 and 55 pounds per cubic foot. The slag is roughly cubical in shape and of an open cellular structure consisting of many non-connecting cells surrounded by thin walls of slag, principally of the glassy phase. The product is alkaline in water and noncorrosive to metals.

Expanded slag is used principally as an aggregate in the manufacture of concrete masonry units. One out of every five lightweight concrete blocks made in the United States is produced from expanded slag. These blocks are made with standard equipment and curing processes. Vibrating machines are preferred when expanded slag is the aggregate. Some aggregate goes into plain and reinforced concrete, such as cast-in-place structures and precast panels, roof slabs and structural members.

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Camera for Big Birdies

Convair installs largest template camera to ease aircraft production problems

NE of the largest template cameras used in the aircraft industry and the only one of its type is helping Convair's San Diego division speed up engineering and tooling for supersonic delta-wing interceptors and other types of aircraft.

Designed largely by Convair graphic arts technicians and built by Consolidated Photo-Engravers and Lithographers Equipment Co., the new camera is 29 feet long. It has an all-metal copyboard 12 feet long and 5 feet high. Its three lenses—a 42-inch Goerz and a 36-inch and 24-inch Zeiss—produce enlargements to 4 times and reductions throughout a range of 1 to 13.

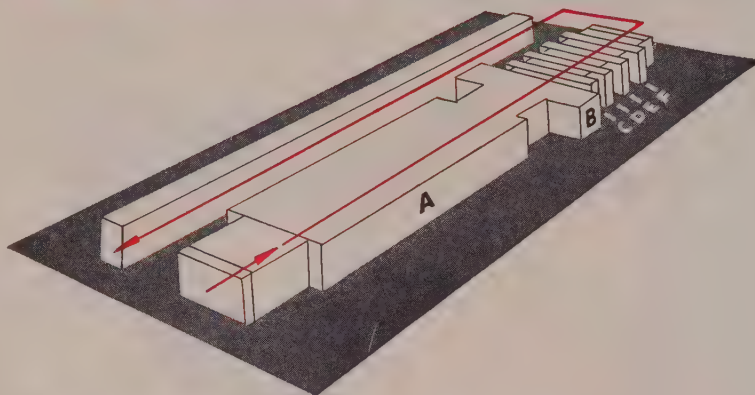
Big Saver—Equipment can reproduce drawings with less than .0002-inch in 12 feet from the original. Drawing and lofting can be done in any scale desired. By using the camera, a precision model can be built to different scales without redrawing the master, a procedure which saves many engineering manhours.

Convair is using the camera for making full-size reproductions of airframe structure for mockups on 1-inch plywood. In addition to saving a great amount of time, this also provides a mockup to very close tolerances. After the plywood reproductions are cut out and assembled, the remaining photographic image assists engineers in finding any points of interference and in completing the design.

Scales Shrinkage—Convair's new camera is also saving considerable time in making shrink reproductions, which are made purposely to a given point oversize for plaster patterns. They are made just enough oversize to allow for the shrinkage of the molten metal when it cools. Prior to having a suitable camera available for this purpose, it was necessary to make two drawings. One was drawn to full size and the other to shrink scale. Only the full-size layout is completed now, and the new camera makes any shrink scale from one layout.

When parts are subcontracted to

Heat Treat Furnace Layout by *Holcroft*...2nd of a Series



- A** Annealing furnace
- B** Hot salt quench
- C** Wash

- D** Acid bath
- E** Wash
- F** Oil dip

Volume Production Castings Annealed, Descaled, Desanded

This "U-type" furnace layout by Holcroft ties right into the production line of a large automotive plant.

The unit anneals, descales and desands 10,000 pounds of castings each hour. After annealing, the stock is dipped in a salt quench, rinsed in water, bathed in acid, water-washed again, and dipped into a soluble oil to prevent rust. A return conveyor automatically brings the trays back to the loading point.

Unusual layouts like this present no particular problem for Holcroft. After all, it's an inherent part of the job to be completely responsible for the work—from the time it is to be heat treated to the time it's ready for finishing operations. It's the type of work Holcroft does well. Holcroft & Company, 6545 Epworth, Detroit 10, Michigan.



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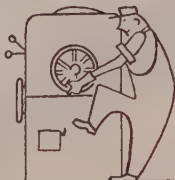
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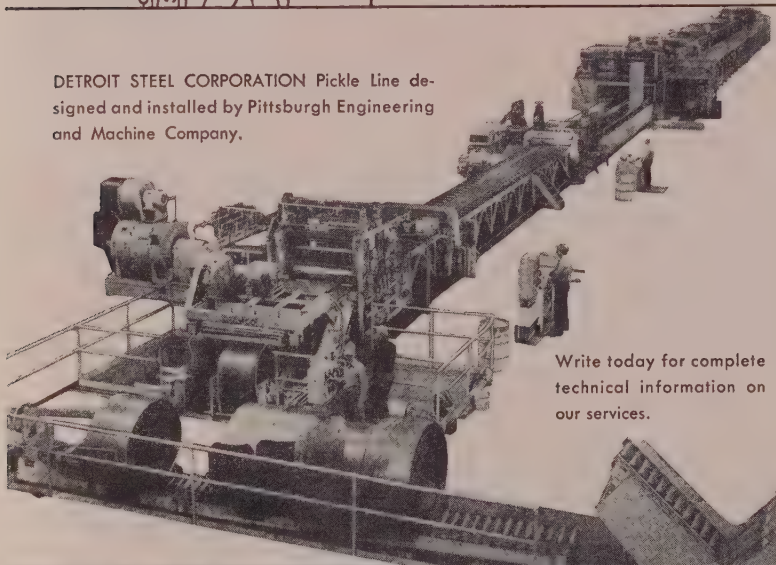


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Powdering the Enemy

Important savings in strategic materials are possible by an iron powder process in making rotating bands for 90mm shells. This is the report made by Chrysler Corp.'s Amplex Division where two Oilite iron powder bands like those above are used on each shell to assist rifling. Division estimates 460,000 pounds of copper can be saved in each 1 million shells

other firms, the new equipment has proved extremely useful in transferring working information. Large charts can be reduced to any scale, and small scale models of buildings and machines can be photographically superimposed on plant layout drawings. The camera can handle continuous tone reproductions as well as line work. It is also being used in production of silk screens, multilith plates, nameplates, aluminum calcs, negatives for blueprint and ozalid reproductions, and all types of photographic paper prints, including many large murals.

Facts on Copper Corrosion

For twenty-seven years, continuous laboratory research and field study of the nature of corrosive attack on copper and copper alloys have been conducted by American Brass Co.'s technical staff. Results of this study have recently been brought up to date in a new 28-page booklet, "Corrosion Resistance of Copper and Copper Alloys." This publication, B-36R, is available without charge from company offices, Waterbury 20, Conn.

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It is no longer necessary to waste hours each day in starting, stopping, loading and unloading operations. The Continuous Wheelabrator Tumbblast turns these waste motions into productive time as it is loaded and unloaded automatically.

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Work progresses continuously through the machine, passing within the crossing abrasive blasts of two Wheelabrator units. The result is a fast, uniform removal of all sand and scale. Production up to 39 tons an hour has been attained in a large automotive foundry.

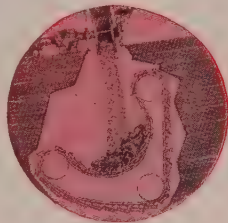
PRODUCES AN ENDLESS FLOW OF CLEANED PARTS

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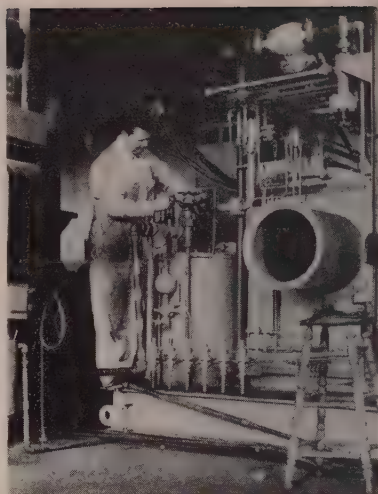


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Coating with Graphite

Besler Corp., Oakland, Calif., uses a concentrated dispersion of colloidal graphite in oil to lick galling and sticking of bolts and nuts in operating boilers. Graphite coating formed by Acheson Colloids Co.'s Oil-dag is unaffected by temperatures of nearly 1000°F, to which fittings on Besler's steam testers are exposed

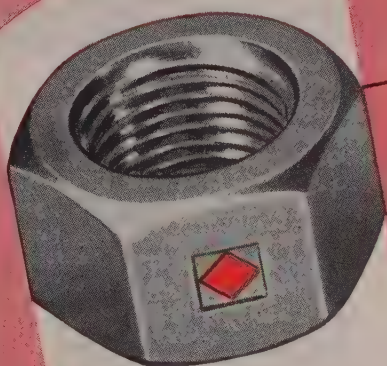
Current Switching with a Snap

One of Isaac Newton's discoveries has been used by engineers at Electro-Snap Switch & Mfg. Co., Chicago, for the solution to instantaneous switching in a newly-developed double-pole precision switch. Operation of the two poles of the switch is based on Newton's reaction principle. When one pole starts to snap over, the resulting reaction force is used to simultaneously snap over the second pole.

The new switch has been developed as an inexpensive answer to switching circuits having two different currents, phases or voltages, but which must be switched at the same time. Because the new double-pole switch can simultaneously break or reverse current flow through two windings of a three-phase motor, it can be used as an inexpensive start-and-stop or limit switch for installation on three-phase machinery.

This is only one application where the switch can be used to replace expensive relays or to combine several switching operations into one action. It can operate as many as four separate circuits at one snap.

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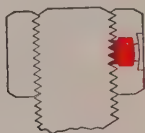
Every thread on a Republic Upson "Nylok" Nut is at work, helping hold the nut tight, even against severe vibration. The nine-lived nylon plug in the side forces the opposite side of the nut tightly against the bolt the *whole thickness* of the nut.

Republic Upson "Nylok" Nuts are easy to apply . . . simply screw them on . . . either way is "up". They are easy to unscrew when you want them off. And they're ready to *re-use*.

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Light thick series tapped $\frac{1}{4}$ " thru $\frac{1}{2}$ "

Regular sizes tapped $\frac{1}{4}$ " thru $\frac{1}{2}$ "
Heavy series tapped $\frac{1}{4}$ " thru $\frac{1}{2}$ "



Here's how the "Nylok" principle works

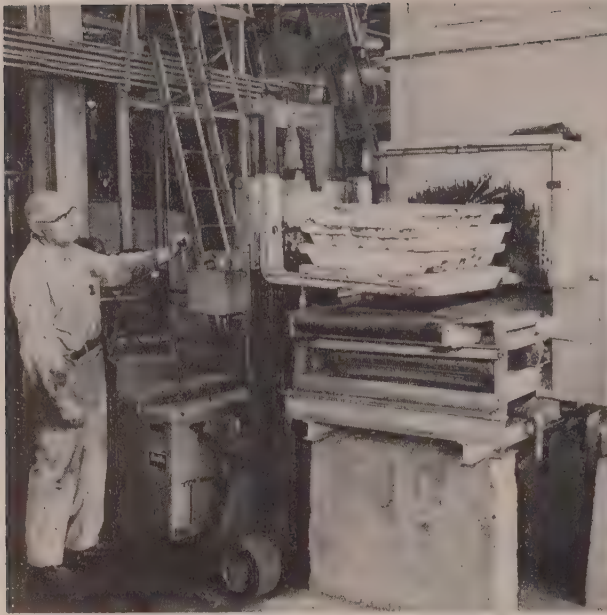
A nylon plug inserted in one of the sides of the cold-forged nut forces the nut tightly against the opposite threads as the nut is turned on.

*U.S. Patent Numbers 2,462,603 and 2,450,694 and pending application

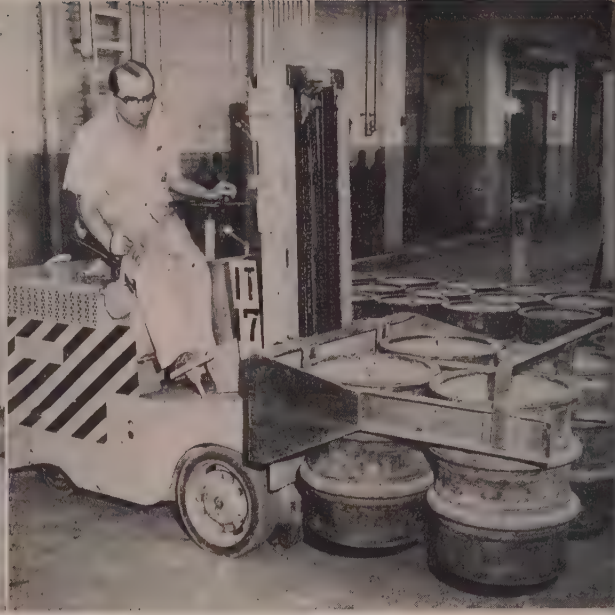
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Lead pigs in 1600-pound loads are lowered onto a conveyor feeding continuously into a melting pot in initial lead oxide preparation step. Minor fork adaption simplifies pig movement and precise control prevents conveyor stress



Following preparation and screening of oxide, the powder is packed into 400-pound hermetically-sealed drums, then moved to paste preparation area, four barrels at a time. Truck equipped with special fork attachment does the job

SIMPLICITY—A MUST FOR HANDLING AS . . .

Plans Grow from Blueprint Stage

Handling redesign can evolve out of consolidating operations in a roomier plant. Here are some steps Exide takes to make the opportunity produce profits

By **WILLIAM R. WOLFE**
Assistant Editor

UNCOMPLICATED procedure and instant communication are potent factors in any effective handling operation. Electric Storage Battery Co. achieves both at its expanded and modernized Crescentville plant in Northeast Philadelphia. The company operates 98 fork and platform trucks plus important conveyor lines, to keep component production, assembly and shipping functioning smoothly.

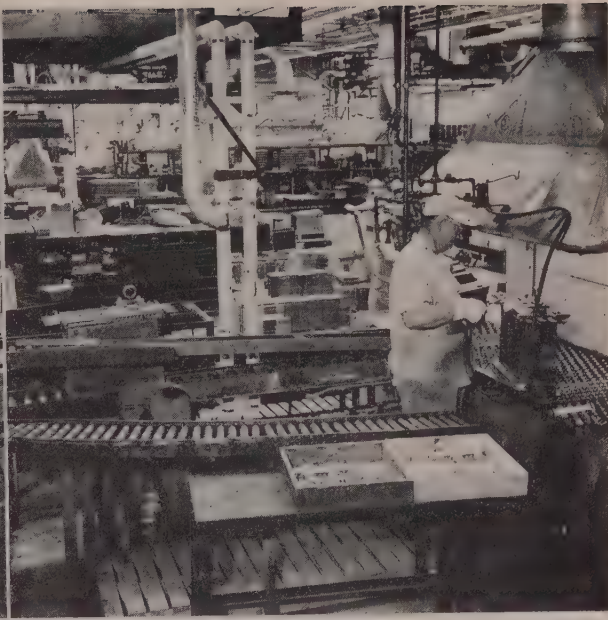
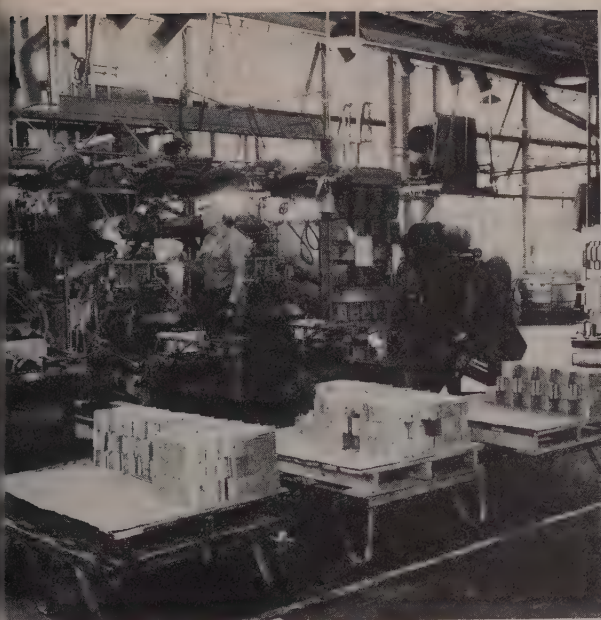
Relocating industrial storage battery production in a new structure gave company engineers opportunity to plan their handling from the blueprint stage. A few of the important practices adopted show the value of their approach in keeping movement fast and to the point.

Short Hauls—Lift trucks have a hand in operations right from the start of the manufacturing cycle. Lead alloy pigs are trucked from the separately housed smelter and stacked in outside storage to await production needs. Virgin lead pigs are shipped into the plant by boxcar, and unloaded by one man in each car, using a lift truck.

The arrival of freight cars calls for a total of two lifts, each equipped with special forks that eliminate need for palletization. Occasional incoming shipments of badly blocked loads require a third man to restack the pigs. Previously the unloading operation required six men and a total of 60 manhours for each box car. Now one man does the job, taking six manhours per car.

These pure lead pigs are also stored outdoors and moved into the building as required for lead oxide preparation. Hauls are kept short. Furnace is only about 30 feet inside the doors. In planning the work, engineers left plenty of room for storage, so enough pigs for about a day's work can be kept ahead without cramping.

Trucks used for all transfer work are standard models, but forks again are spaced specially to fit pig ends, obviating pallets. Pure lead pigs weighing about 100 pounds each are lowered in 1600-pound loads on forks to a conveyor feeding continuously into the melting pot. Molten lead is cast in 5-pound balls, conveyed into the mill and reduced and screened into gray oxide powder.



Negative grids are cast in four banks of three of these machines. To keep casting operations moving without a hitch, trucks simply pick up top member of double pallet tier, replace it and remove grids to the pasting area

Plates are lead brazed together in positive and negative banks after a cell is assembled. Jig slides easily over ball-bearing casters for positioning, then departs on one of the several power-driven conveyors to the next station

To transfer the powder, a truck equipped with special fork attachment picks up four 400-pound sealed drums and moves the load to an elevator station where powder is elevated to a mezzanine and processed to paste form. It then drops through a hopper to paste mixing machines where about 24 hours is required to reach the proper particle size and consistency.

Double-Tiered Pallets — Alloy pigs reach the melting furnace by the same handling procedure followed with the pure lead. However, this furnace has a gas-fired reheater that ties in effectively with the trucks' transfer task. To supply grid casting machines, a truck operator simply swings aside the reheater's gas fixture and transports the entire receptacle on its permanent steel pallet.

Four banks of three casting machines each are used to turn out the grids. Each bank is served by a continuous under-the-floor conveyor that returns flash, trim and rejects to the machines without further handling.

The double-tiered pallet practice adopted by the company as standard is employed first at this point. Completed grids are stacked by op-

erators on expendable wooden pallets. These, in turn, rest on steel skids that raise the work to simplify grid transfer from machines. When a load is complete, trucks lift the upper tier and remove grids to the pasting area, replacing the wooden pallets so casting can continue on a 24-hour basis without a break.

Balance, Accessibility — Proper inventory balance and good accessibility to components necessary for maintaining production in its battery line result from Exide's parts storage and handling system. Small parts are kept in trays marked clearly according to type and size. Trays are racked five-high, each tier resting on its own wooden pallet.

When a specific part is required for assembly, a truck slips into a 7-foot aisle, forks out the proper pallet-mounted tray and moves it off to the assembly area where men work directly out of trays. When a job is completed, workers simply deduct the number of parts used from the previous total shown and the tray, still riding its pallet, is whisked back to the rack.

In addition to a procedure that is fast and precludes unnecessary

movement, the company says its system means a part can always be run in economical numbers, once a mold is set up. Reordering is automatic. When part total showing on any tray falls below specified minimum, that tray's reorder number is turned over to the small parts production department.

Effortless Positioning—To make up battery elements, assembly men have a ball-top table on which they can move and position the component-holding jigs with little effort. One man fits parts in the jig, then slides the unit to a second worker who fuses plates to terminal posts to complete the cell.

Cells leave the assembly table by way of several power-driven conveyors, from which they are shunted to the proper assembly station. Combining inspection and a simple transfer operation, one operator uses an electric hoist to pull the cell out of its jig, look it over thoroughly for possible short circuits and drop it into its battery container.

Again, the U-shaped steel skids serve to raise batteries to convenient work level for application and burning of sealing compound. Steel pallets, in this instance, rest

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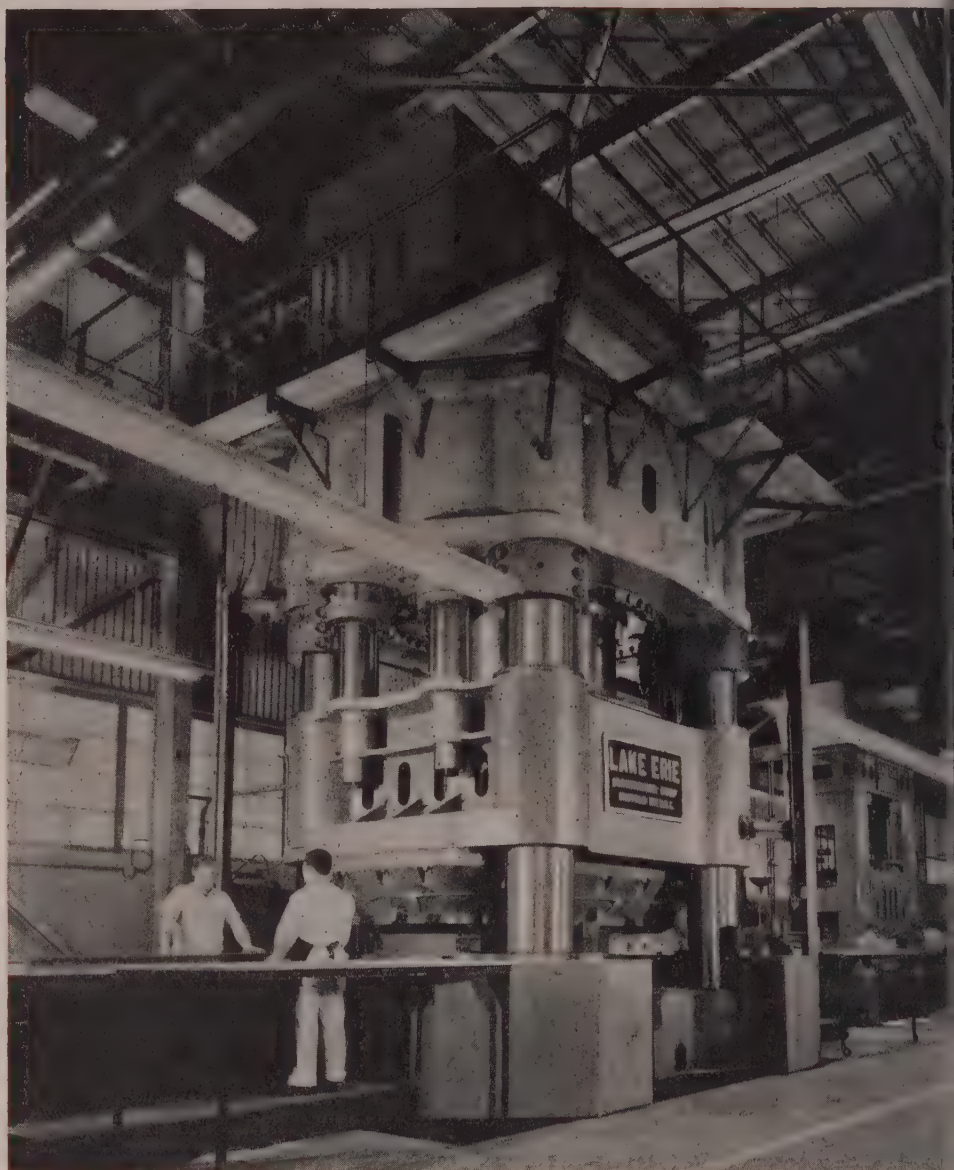
Record of

LAKE ERIE

PRESS PURCHASES

by **BELL Aircraft**

DATE	NUMBER	TONNAGE
1937	1	750
1939	1	2500
1940	1	275
1941	1	275
1942	1	5000
1943	1	275
1943	1	5000
1943	2	275
1943	4	500
1951	1	400
1952	1	7000



ABOVE. New 7,000 ton press is shown producing Bell helicopter parts...in this instance left-hand aft sill for the HSL-1 engine compartment. Material is 58.00" long by 6:50" wide by .091" thick. Two flange and a contour are formed. Depth of draw is 3". Pressure required is 5,000 tons. Another new Lake Erie press appears in the background. It is a triple action model with a 400 ton capacity.

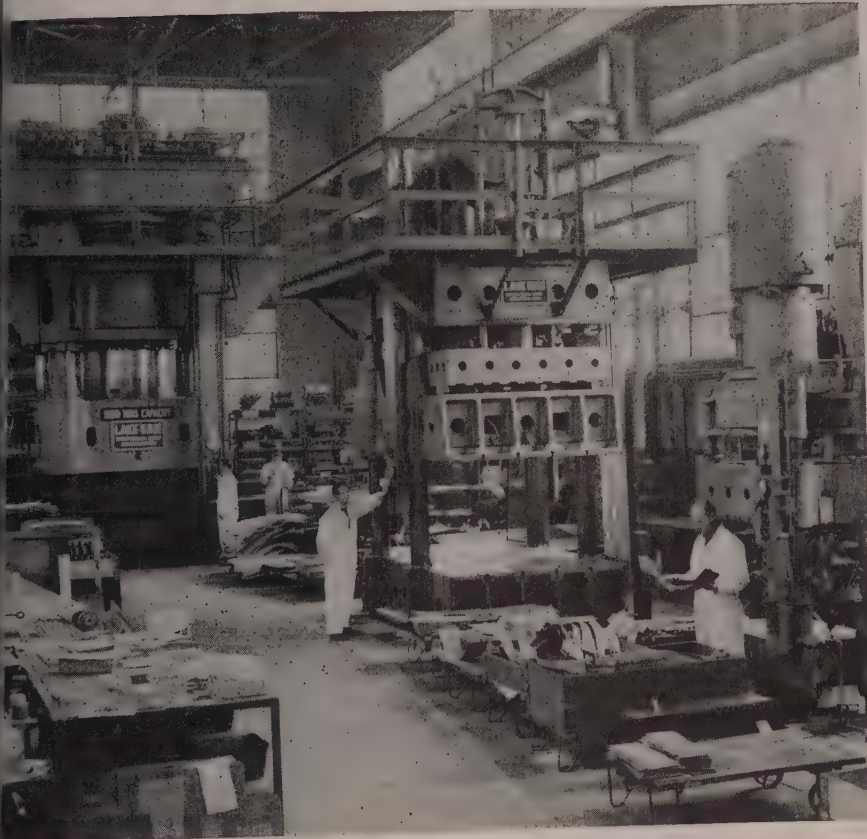
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places **LAKE ERIE FIRST**

...when it comes to Hydraulic Presses



ABOVE. A corner of the press room in the Bell Aircraft plant at Buffalo shows three Lake Erie presses with capacities of 5,000 tons, 750 tons and 275 tons respectively. The range in sizes and types, and the versatility of Lake Erie presses are a big asset to airframe, jet engine and accessory manufacturers.



LEFT. Bell's 5,000 ton Lake Erie press shown equipped with a rubber pad. Lake Erie presses of this type are available in capacities from 500 to 7,000 tons producing up to 2,000 p.s.i. on the work. High speed hydraulically operated loading tables or electrically operated tables (as shown above) are available for all press sizes.

The 15th Lake Erie Press
Purchased by Bell is a 7,000
Ton Unit for the New Helicopter
Plant at Fort Worth

Bell Aircraft Corporation purchased its first Lake Erie press in 1937. Since then, 14 additional Lake Erie Presses have been added. These 15 presses have 5 different designs and six different capacities ranging from 275 to 7,000 tons. This year-in year-out satisfaction of Bell Aircraft and the variety of Lake Erie equipment involved are significant:

- 1** They reflect the competence and versatility of Lake Erie designers and builders.
- 2** They demonstrate that Lake Erie presses do their jobs with gratifying efficiency.
- 3** They prove that Lake Erie presses give years of the utmost satisfaction.

These are sound reasons why it is always good business to call in Lake Erie when hydraulic presses are under consideration.

LAKE ERIE

HYDRAULIC PRESSES

LAKE ERIE ENGINEERING CORP.

General Offices and Plant

882 Woodward Avenue, Buffalo 17, New York

District Offices in NEW YORK • CHICAGO • DETROIT • PITTSBURGH

Representatives in Other U. S. Cities and Foreign Countries

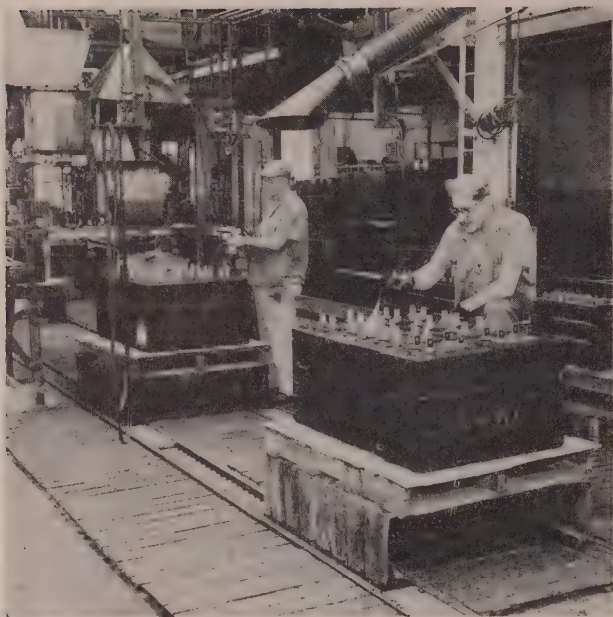
Manufactured in Canada by: CANADA IRON FOUNDRIES LIMITED

HYDRAULIC PRESSES • DIE CASTING MACHINES
 ROLLING MILL AUXILIARY EQUIPMENT

LAKE ERIE ®

Lockheed Aircraft Corp.
 Glenn L. Martin Company
 North American Aviation, Inc.
 Northrup Aircraft, Inc.
 Piasecki Helicopter Corp.
 Piper Aircraft Corporation
 Republic Aviation Corp.
 Solar Aircraft Company

Thompson Products, Inc.
 United Aircraft Corporation
 Chance Vought Aircraft
 Division
 Pratt & Whitney Aircraft
 Division
 Sikorsky Aircraft Division



For application and burning of sealer, U-shaped steel skids again raise batteries to convenient working level. Skids ride on floor-level conveyors to provide effortless movement to each succeeding point in the assembly chain



Smaller batteries usually are packaged individually. Each line for this job is self-contained, leading a battery quickly through packing, banding, weighing. A conveyor section is isolated from the line for continuous weighing

directly on a floor-level roller conveyor for simple movement to proper location.

Straight-Through Packaging — Larger batteries are never removed from their wooden pallets, remaining in place through assembly and shipping unless a customer requests otherwise. Smaller types frequently are ordered with individual packaging. The several lines set up for this function provide straight-through operation, with each single conveyor tying together packaging, banding and weighing. One man does the weighing on a section of roller conveyor isolated from the rest of the line.

Truck Maintenance—A vital element of Exide's materials handling program is a well-run maintenance facility. The company sets aside an entire area for this job and keeps it manned on a 24-hour basis.

About 20 truck makes are represented in the company's fleet, and at least two have been in service since World War I. So maintenance men must be versatile to assure a smooth-functioning schedule. The department works on a regular service and overhaul plan. Every truck gets a thorough going-

over in monthly rotation. Complete overhaul comes every two years.

Communication—A more recent refinement calculated to sharpen the truck fleet's effectiveness is a radio sending and receiving hookup beamed into the plant. Radio control reaches ten trucks at present. But success of the venture has been sufficiently impressive for the company to plan at least a half-dozen more receivers.

To get into the radio transmission business, Exide was assigned a VHF frequency modulation wave length by Federal Communications Commission. Two licensed operators handle transmission. Maintenance of radio units is contracted to the manufacturer, General Electric Co.

In terms of immediate cost, the radio installation permitted a reduction from two supervisors and a pair of dispatchers to one of each. But the most telling improvement is probably in truck assignment, where the radioman can keep a running check on operations throughout the works. A table-size map with miniature magnetized trucks is at his elbow to pin-point each unit's job status. A glance tells him where each

truck is working and at what job. An instant, brief conversation takes care of progress report or reassignment.

Toting Up—Exide left a multi-story structure containing about 350,000 sq ft of floor space when it consolidated operations at North-east Philadelphia. Moving industrial battery manufacture to Crescentville meant its designers could plan material movement from receipt to shipment of packaged product.

A single indication of their success in simplifying and streamlining: About 160 trucks was the minimum required to serve the old plant. In the new 840,000 sq ft works, the 98 trucks do a thorough job and the company expects to reduce even that total.

Packaging, Handling Dates Set

Technical short course conducted as part of the packaging and handling exposition will begin this year on Monday, Oct. 19, and run through Thursday. The show opens Oct. 20.

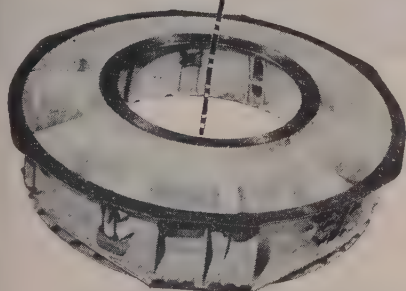
Massachusetts Institute of Technology is joint sponsor of the technical sessions this year.



IN VOLUME PRODUCTION AT

WRIGHT AERONAUTICAL DIV., CURTISS-WRIGHT CORP.

Ductalloy® castings make "impossible" parts producible



Wright J-65 jet engine main bearing support... impractical to machine from one piece. Readily produced as a weldment of two Ductalloy precision castings.

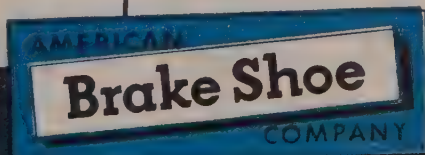
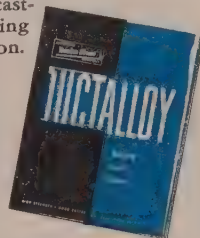
This highly stressed part secures the 7,200-lb. thrust Wright J-65 jet engine in the aircraft, carries major structural members ahead of and behind it, and mounts a main shaft bearing in its center. Air roars between the carefully contoured inner and outer rings.

As originally hogged out from an aluminum forging on an experimental basis, this part required some 1200 hours of machining—impractical for volume production. Redesigned by Curtiss-Wright Corporation's Wright

Aeronautical Division as a weldment of two Ductalloy precision castings, it requires only simple turning and facing plus 25 ft. of welding to assemble the ten interconnecting stainless steel struts. An "impossible" part for volume manufacture in other metals which would meet specifications, it is rendered readily producible in Ductalloy—Brake Shoe's ductile cast iron that combines high strength with the casting and machining qualities of gray iron.

YOUR PROBLEM—Ductalloy may solve your problem if it involves economical production of complex metal shapes that are difficult to cast in steel, expensive to forge, or lacking strength in gray iron. Brake Shoe's experience, research laboratory and experimental foundry are available to help you best utilize its unusual combination of characteristics. Write for your copy of this new technical bulletin today.

Ductalloy castings are made by: BRAKE SHOE & CASTINGS DIVISION
ENGINEERED CASTINGS DIVISION



230 PARK AVENUE
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WHY IT PAYS TO BUY STEEL FROM WAREHOUSE



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- LOWER CAPITAL INVESTMENT
- FASTER PRODUCTION
- FEWER INVENTORY LOSSES

UNLOADING and distributing bulk shipments of steel to storage area and then to production and job sites' demand added time, manpower and equipment. Eliminate these added costs by letting U. S. Steel Supply deliver your steel to the spot, in the condition and at the time you need it. Fifteen warehouses with the most modern steel handling and delivery equipment assure your complete satisfaction.

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Warehouses and Sales Offices Coast to Coast

NEW

PRODUCTS and equipment

Reply card on page 139 will bring you more information on any new products and equipment in this issue

Heavy-Duty Threading Machine ... for large diameter work

This heavy-duty machine handles precision threading on large diameter work. It is built in a single spindle model; is furnished either with or without lead screw attachment. Carriage is designed

It also provides a reliable basis for computing complete costs on specific handling jobs, since it op-



erates only while the ignition switch is turned on. After recording 10,000 hours of engine operation, the instrument automatically restarts at zero. Towmotor Corp., Dept. ST, 1226 E. 152nd St., Cleveland 10, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 2

Sheet Metal Forming Brake

... friction factor minimized

Friction factor of operation has been largely eliminated in this 6-foot 8-inch sheet metal forming power press brake. Some of its features: Ram and welded steel



frame are both normalized; for precision adjustment, one complete revolution of operator handle adjusts ram only 0.008-inch; foot treadle is adjustable to any

position of bed with uniform action at any point.

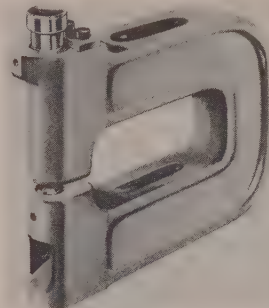
Die holder is included as standard equipment. Motor is 1½ hp; speed, 1800 rpm. Variable range of 16 to 40 strokes per minute is gained by handwheel adjustment. Service Machine Co. Inc., Dept. ST, 492 Miller St. Elizabeth, N. J.

FOR MORE DATA—CIRCLE REPLY CARD NO. 3

Piercing, Notching Unit

... functions without die sets

Self-contained piercing and notching units can be mounted on the lower bed of a press to elim-



inate customary die sets. The press merely furnishes the force to drive the punch through the workpiece. Free-floating punch and die transmits load of stripping directly on the work instead of the holder's upper arm. Punch and dies are aligned automatically and permanently in holder.

Units can be re-used in any number of setups. Toolset, division of General Riveters Inc., 777 Hartel Ave., Buffalo 7, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 4

Vacuum Coater

... for small-lot metallizing

Gap between full-scale commercial production and experimental laboratory work is bridged by this

or heavy work, gibbed to provide wear compensation.

Carriage front or vise is designed to give 60 per cent more gripping efficiency than the manufacturer's previous models. A single gear shift lever provides rapid speed change of 25 per cent for any given spindle speed as determined by speed change gears in use. Three pairs of gears provide control speeds from 9 to 152 rpm. Landis Machine Co., Dept. ST, Waynesboro, Pa.

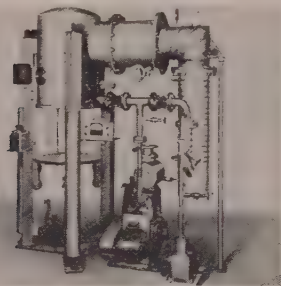
FOR MORE DATA—CIRCLE REPLY CARD NO. 1

Truck Engine Hour Meter

... records all operating phases

Hobbs engine hour meter is now available either as original equipment or for in-field installation on all the manufacturer's lift trucks. This instrument permits accurate recording of all truck and tractor operating phases. Chief among its advantages is elimination of guesswork in scheduling maintenance functions and periodical check-ups.

model 3111 coater, built for limited commercial production in vacuum metallizing. Its high-speed pumping system employs the manufacturer's rotary gas ballast



pump, which can pump water vapor without loss of pumping speed or capacity and without contaminating oil.

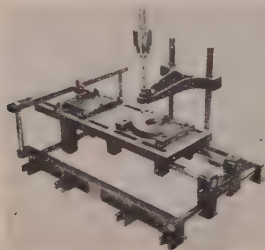
Vertical coating chamber is 24 inches in diameter, 30 inches high. One man can operate the coater easily. Vertical chamber and loading tray arrangement means short production cycles and simple operation. National Research Corp., Dept. ST, 70 Memorial Drive, Cambridge, Mass.

FOR MORE DATA—CIRCLE REPLY CARD NO. 5

Hole Locating Device

... greater drilling accuracy

Considerable costly jig and fixture designing and building, common in punch and die making and in production drilling, is reported



eliminated by this hole-locating device. The Production Master is engineered for high accuracy in production drilling.

Accessory tool is extremely versatile, making any standard drill press produce accuracy commensurate to jig drilling and reaming and jig boring. It handles work up to 6 3/4 inches by 10 inches by the height permitted by the drill press. Honnef Engineering Co., Dept. ST, Wethersfield, Conn.

FOR MORE DATA—CIRCLE REPLY CARD NO. 6

263-Item Tracing Template

... full scale on single sheet

Tracing template for jig and fixture components covers 263 items in full scale on a single sheet. Tool designers should find this condensed template valuable because it eliminates considerable paging through bulky sheets and catalogs searching for suitable standard tools.

A white-on-black background is designed to relieve eye strain and eliminate missed lines. The tem-

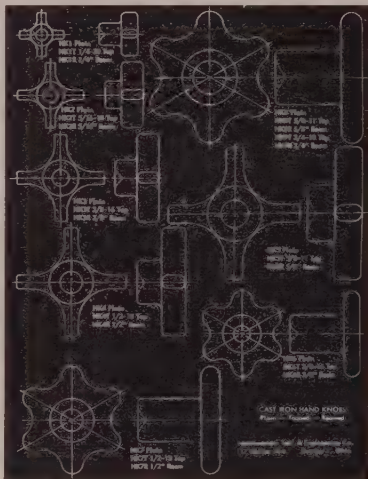


plate is available without cost from the manufacturer. Northwestern Tool & Die Co., Dept. ST, Dayton, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 7

Parts Handling Storage Line

... assembly without tools

Standardized pressed metal pallets, tote pans and adapters, and small parts bins can be assembled without tools into infinite arrangements from this parts handling line. Setups can be made to suit current production and assembly



requirements, quickly disassembled for future adaptations.

Results include reduced worker

motion, simplified inventory control, minimized parts waste and loss. Important also is co-ordination of crib and storage areas, plus general recovery of productive floor areas. Any pan can be removed, drawer-like without disturbing its neighbors. Groups or sections can be moved with lift trucks. Bathey Mfg. Co., Dept. ST, 186 S. Mill St., Plymouth, Mich.

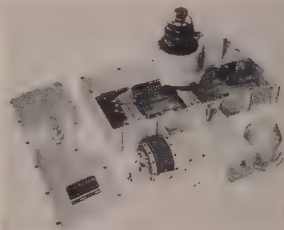
FOR MORE DATA—CIRCLE REPLY CARD NO. 8

Automatic Wheel Dresser

... any desired contour

Model 42 automatic contour wheel dresser mounts permanently to the right of the foot stock on inclined table type plain cylindrical grinders. Almost any desired contour can be dressed into the grinding wheel with this diamond, with accuracy to tenths. The diamond moves across the wheel in an uninterrupted movement, producing perfect blend between radii and tangents or any other complex form.

A governor-control variable speed motor operates the mechanism that controls movement of the diamond. Microscope fixture with 40 to 1 magnification is used to



set diamonds in their holders. Hoglund Engineering & Mfg. Co., Dept. ST, 343-5 Snyder Ave., Berkeley Heights, N. J.

FOR MORE DATA—CIRCLE REPLY CARD NO. 9

Power Hack Saw

... pressures 0 to 200 pounds

Quick-acting swivel base on this No. 4 power hack saw operates to a 45-degree angle, with capacity of 4 x 7 inches at that angle. Saw's capacity reaches 7 x 7 inches. Variable power regulator provides blade pressure from 0 to 200 pounds. This ups efficiency through the entire materials range.

The model has automatic lift and reverse stroke, built-in coolant tank and pump. An adjustable foot

TO

GEAR MANUFACTURERS

Exclusively

if you have trouble meeting production schedules.
if you have trouble meeting precision tolerance specifications.

YOU should "read-up" on the HAMILTON® line of Small-Gear, Precision Hobbing Machines!

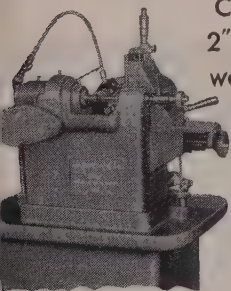
3

FREE PRECISION MACHINES to meet your every requirement.

HAMILTON No. 00

For the generation of spur gears and pinions only.

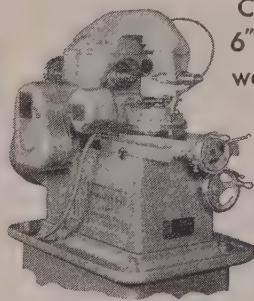
Capacity:
2" O.D. of
workpiece.



HAMILTON No. 1

Hobs spur and spiral gears, worm gears and worms (to three thread), splined shafts, gear sectors, and pinions.

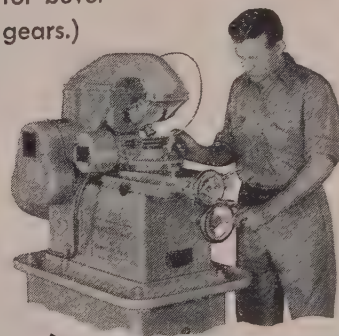
Capacity:
6" O.D. of
workpiece.



HAMILTON No. 1-B

Generates any shape that can be made on the No. 00 or the No. 1 machines, plus bevel gears and face gears.

Capacity: 6" O.D. of workpiece (3" O.D. by 3/16" face, for bevel gears.)



Exclusive Greater range of hob spindle speeds: 109 to 1259 R.P.M. — 12 speeds.

Exclusive Speed, feed, indexing. Each can be selected independently. This, and wide range of hob speeds, adds flexibility; reduces set-up time; gives quick selection of speed and feed to suit material and gear size.

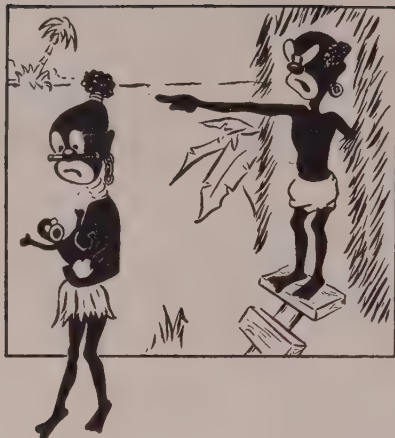
Exclusive Alignment and trueness of work and hob spindles are held to within .0002".

Exclusive Generates gears from 3 teeth to 1200 teeth.

Exclusive Accumulative error of not more than .0002" guaranteed.

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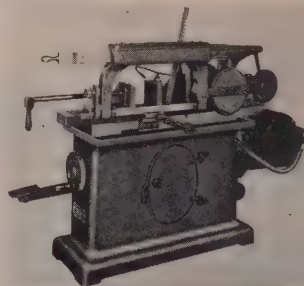
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CITY _____ ZONE _____ STATE _____

Threadwell

NEW PRODUCTS
and equipment

lift helps hold saw frame in position for loading or unloading. Two speeds, 80 to 140 strokes per min-

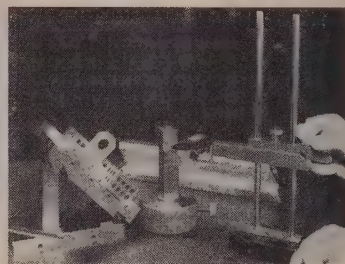


ute, are available. Sales Service Machine Tool Co., Dept. ST, 2363 University Ave., St. Paul 14, Minn. FOR MORE DATA—CIRCLE REPLY CARD NO. 10

Gage and Inspection Block

... no trial and error readings

Fast, accurate inspection and layout work are achieved by this indicator gage and adjustable inspection block. Precision gage instrument can be adjusted quickly



to approximate height and locked positively in place. Final adjustments can be made rapidly by hand in millionths of an inch. Indicator assembly travels freely on two chromium plated vertical parallel rods and is locked to both rods with a knurled thumb nut.

Inspection block holds down inspection time by eliminating time-consuming trial and error readings on the height gage. It is adjustable in millionths through a

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REPLY CARD**

Just circle the corresponding number of any item in this section for more information.

Yours FOR THE ASKING

TEAR OUT CARD, FILL IN and MAIL TODAY

7. Dust Collecting Units

Vulcan Tool Co.—Individual Vulcanaire dust collecting units, pick-up and holding devices are briefly described in 6-page folder. Installations of various grinding machines are pictured.

8. Corrosion Control

D. W. Haering & Co.—The particular use of each glucosate made by company for correction and control of corrosion, scale and algae is presented in unusual folder. Glucosates are now being sold in ready-to-use drums.

9. Perforating

Erdle Perforating Co.—Prepared to assist machine and appliance designers, builders, manufacturers and others is this catalog on perforated materials of various kinds. Photos show various perforations styles in use. How-to-order info is given.

10. Automatic Drill

Emerson Electric Mfg. Co., U. S. Electrical Tool Div.—Features of model 14AU ¼-in. automatic drill are illustrated in data sheet. Brief description with specifications is also given.

11. Precision Parts

Research Development Manufacturing Inc.—Research, development and/or manufacture of Swiss-precision components for electronic, mechanical or electrical devices are briefly described in 4-page bulletin. Illustrations show some of the production facilities.

12. Worm Gear Reducers

Cleveland Worm & Gear Co.—174-page first edition of catalog 400 presents in compact and usable form Cleveland products in sufficient descriptive detail to permit accurate selection and application. Contents cover worm gear design, manufacture of Cleveland units, tabulated ratings

and efficiency graphs, dimensions, design of Cleveland units and bed-plates, cooling tower drives, Speedaire fan cooled units, special unit designs and standard components.

75. Power Brush Finishing

Osborn Manufacturing Co.—Designed for the designer and highlighting important factors in the selection and application of power brushes for specific finishes, 12-page manual "Power Brush Finishing" is well illustrated. Useful charts back up informative text.



76. Vertical Grinder

Bullard Co.—Vertical chucking grinders with main and side heads and combination mechanical, electrical and hydraulic controls are subject of 12-page illustrated bulletin. Complete specs are given on six models, with full features listing.

77. Power Hack Saws

Sales Service Machine Tool Co.—4-page bulletin 1052 gives photo and brief specs on the complete Keller line of power hack saws, which includes models for both floor and bench and wet and dry, cutting with capacities ranging from 5 x 5 to 9 x 9 in. Accessories are also described.

78. Industrial Clutches

Carlyle Johnson Machine Co.—20-page illustrated 1953 catalog contains data on eight standard sizes of standard Maxitorq clutches with capacities between ¼ and 15 hp. Units are designed for such applications as machinery drives. Also featured are an automatic overload release clutch in six sizes and pulley type, cut-off coupling and ring driving cups.

7-6-53

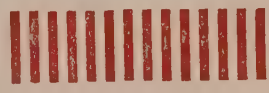
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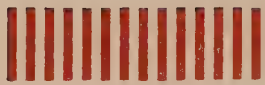
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3	13	23	33	43	53	63	73	83
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6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
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COMPANY	
PRODUCTS MANUFACTURED	
ADDRESS	
CITY AND STATE	

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79. Stainless Equipment

Rodney Hunt Machine Co.—Range of engineered stainless steel fabrications is shown in 4-page illustrated bulletin 153. Included are stainless tanks of standard and special construction in wide size range. Company can build equipment from small to complex.

80. J-Type Chucks

E. Horton & Son Co.—Line of Horton J-type chucks for jet engine machining is detailed in 4-page illustrated bulletin C-201. Described and illustrated are 12-jaw "pinch type" chuck for machining stress relieved parts and 6-jaw scroll combination chuck for use on right angle lathes.

81. Furnaces & Burners

Eclipse Fuel Engineering Co.—Design features and capacity ranges for line of Vari-Set proportional mixers with adjustable jet are found in 4-page illustrated bulletin L-700. They use any commercial gas. Another 4-pager, catalog C-90, presents info on Eclipse Sklenar reverberatory furnaces for melting iron, brass or aluminum. Specs are given.

82. Freezers & Testers

Webber Appliance Co., Industrial Freezer Div.—8-page illustrated folder on industrial freezers and complete range temperature testing units illustrates 12 models and has complete information and specs on 36 standard units. Temperatures as low as minus 165° F are available.

83. Jig Grinding Spindle

Vulcan Tool Co.—An air driven jig grinding spindle is illustrated and described in 6-page folder. Unit fits to most machine tools in the same way as a boring chuck, and has controllable spindle speeds from 30,000 to 65,000 rpm. Specs are given, also complete accessories listing and description.



84. Press Brakes

Cincinnati Shaper Co.—Here's a 72-page spiral bound and well illustrated catalog, identified as B-4, which offers a multitude of data on all steel press brakes. A glimpse at the contents shows applications of press brakes, standard features, fundamentals of selection, specifications, punching equipment and other items.

85. Air Cleaner

Hankison Corp.—Dehydrator, mechanical filter and automatic trap combined into one unit for removing water and sludge from compressed air lines is subject of illustrated data sheet. This model B-30-D Condensifilter has capacity of 30 scfm at 100 psig.

86. Wire Punches

Dayton Punch & Insert Co.—High speed steel punches in 70 standard sizes from 0.032 to 0.189-in. with lengths of 2½ in. are described in 6-page folder. Tools are designed to punch closely spaced small diameter holes to high tolerances. Folder quotes prices and quantity discounts, and gives data on special types.



EDITORIAL ARTICLES
Available in Limited Quantities

87. Ductile Iron Specs

G. Sorkin, Metallurgist, Navy Dept., Bureau of Ships, describes in STEEL article the new "Specification for Ductile Iron" issued by the bureau. It requires low phosphorus raw materials and a ferritizing anneal to give material with highest uniformity. Applications will continue to grow.

88. Ceramic Coating

New facilities at Hotpoint Co. in Milwaukee designed and constructed solely for processing high temperature ceramic coatings are described in STEEL article "New Methods Pay Off for High Temperature Ceramic Coating." Where metals must be protected from heat, this coating offers a solution.

89. Mill Replacement

Replacement of old mill equipment with new in the same location and with minimum of mill downtime was accomplished recently at Wheeling Steel Corp. New two-zone reheating furnace erected outside building was moved 44 feet on antifriction bearings to permanent location in skelp mill train. The story is in STEEL article "Billet Heating Furnace Replaced in 16 Days."

90. Belt Surface Grinding

Belt grinding of metal surfaces is taking hold as a method worth investigating. Low cost, minimum part distortion and rapid machining cycles are some of the advantages. Further possibilities of belt grinding are presented in STEEL article "Surface Grinding: Consider Coated Abrasives" by W. K. Seward of Carborundum Co.

ange of 0.250-inch vertically.
Hietzmann Tool Corp. Dept. ST,
Inglewood, O.

OR MORE DATA—CIRCLE REPLY CARD NO. 11

Cartridge-Actuated Driver

... sets studs in concrete, steel

Permanently-attached spall or protective shield is an important feature of this cartridge-actuated tool for setting studs in concrete or steel. For close-to-the-wall jobs, a section of the spall shield can be lifted and turned out of the way.

The driver can be used on either construction or maintenance jobs,



where it enables user to set a stud within seconds. Interchangeable barrels permit driving either 1/4 or 3/8-inch studs with the same firing unit. Velocity Power Tool Co., Dept. St., 201 N. Braddock Ave., Pittsburgh 8, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 12

Vertical Action Starter

... smaller than clapper type



vertical action starter. The starter is considerably smaller than the clapper type it replaces. Con-

Maximum polyphase ratings of 50-hp, 220v; 100-hp, 440 to 550v are possible on this NEMA size 4

USE A REPLY CARD

Just circle the corresponding number of any item in this section for more information.

MUELLER BRASS CO.

forgings

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AND ALUMINUM**

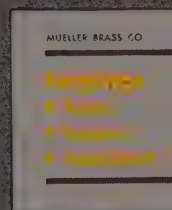


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MUELLER BRASS CO.

PORT HURON · MICHIGAN

tacts are silver, so never require filing or dressing. All parts are front-mounted for maximum accessibility in service and maintenance. Contacts can be inspected by removing arc chamber covers and can be removed or replaced without disturbing line or load wiring.

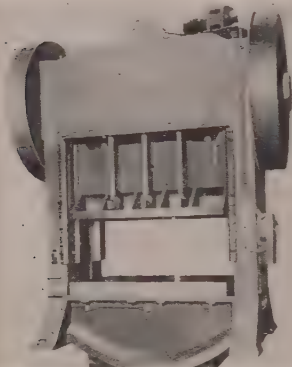
As many as eight electrical interlocks can be added to the starter. Square D Co., Dept. ST, 4041 N. Richards St., Milwaukee 12, Wis.

FOR MORE DATA—CIRCLE REPLY CARD NO. 13

Double-Crank Power Press

... electric air-powered clutch

Press is a straight-side, double-crank and double-gear model. Its twin drive is equipped with two-station electrically-controlled and air-operated drum type clutch, with spring-loaded brake. It is designed with air counterbalance to



the slide, and flywheel is provided with auxiliary air brake to bring it to a quick stop when power is shut off.

Bed is arranged with 91-ton pneumatic cushion in two units, with air manifold controls so cushions can be operated independently. Press has 60 x 96-inch bed and slide area, capacity of 525 tons. Cleveland Punch & Shear Works Co., Dept. ST, Cleveland 14, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 14

Automatic Sheet Metal Lifter

... self-opening and closing

By enabling crane operators to pick up and deposit packs without waiting for men on the ground, this sheet and plate lifter eliminates the delay and labor costs of several men climbing over stacks to pass

chain slings or operate lifter manually. Cranemen can pick from high sheet stacks or inside holes in a stockpile as easily as from an outside row.

In warehousing, only an 8-inch space is required between stocks



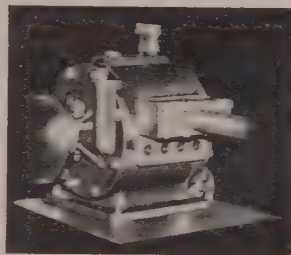
instead of the usual 24 to 30 inches. Material can be stacked to the limit of overhead cranes, a considerable saving in most warehousing situations. The lifter unloads incoming material from cars or trucks to the stockpile with only one man below to lay stringers between packs. Jaeger Machine Co., Dept. ST, Dublin Ave., Columbus 16, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 15

Typewriter-Size Compressor

... total weight: 130 pounds

This air compressor, small as a typewriter, weighs only 130 pounds and measures 11 x 9 x 9 inches. Its capacity is 120 cu ft of free



air per minute at 120 psi, with speed to 1000 rpm. Petersen Enterprises, Dept. ST, San Francisco, Calif.

FOR MORE DATA—CIRCLE REPLY CARD NO. 16

Granite Surface Plate

... precision layout inspection

Line of granite surface plates made of even-grained, blue-white Westerly granite is added to the manufacturer's precision layout and inspection equipment. Angle of grain to working surface is about 45 degrees, minimizing possibility of chipping or plate breakage. All

plates are precision ground and lapped; surface accuracy is unaffected by ordinary temperature changes.

Working surface is extremely



smooth, yet natural pores prevent tool wringing and assure free movement. Taft-Peirce Mfg. Co., Dept. ST, Woonsocket, R. I.

FOR MORE DATA—CIRCLE REPLY CARD NO. 17

Roller Forming Tool

... replaces cross slide

This tool is developed to replace the cross slide in forming operations to gain speed and accuracy. It is a hand-operated turret lathe attachment using any standard cutting tool to form soft alloys or hard steels. Work is supported by rollers while forming cut is made.

Tool produces a smooth, high-



quality finish from stock sizes 3/16 to 2 inches in diameter. Mark C. Walker & Son Co., Dept. ST, Orange, Calif.

FOR MORE DATA—CIRCLE REPLY CARD NO. 18

Plastic Coating Process

... no reduction in flexibility

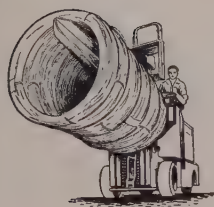
Plastic coating process extends application to such items as flexible steel tubing, metal and paper jacketed tubing and other hard-to-coat materials. The process can be completed according to customer requirements with various





For industrial trucks...Exide-Ironclad now offers

- ★ **20% more capacity in the same space**
- ★ **Lowest cost per A. H. to own and operate**



These are the features that contribute to the higher capacity and longer life of the T-H Battery:

Its larger positive plates, containing corrosion-resistant Silvium, are different...unique...exclusive! No other type of positive plate construction offers you the advantages of the T-H Exide-Ironclad, with its slotted plastic tubes, permanently sealed on the bottom with polyethylene tube sealer. More active material is exposed to the electrolyte, resulting in greater power. More active material is retained, providing higher battery capacity for a longer working life.

Other features include improved negative plates...practically indestructible Pormax separators...new sealing compound...shock-proof molded jar...unbreakable quarter-turn vent plugs of plastic...corrosion-resistant tray coating.

*Now more than ever before...
YOUR BEST POWER BUY AT ANY PRICE!*

1888...DEPENDABLE BATTERIES FOR 65 YEARS...1953

**The new T-H
Exide-Ironclad
BATTERY**



THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2 • Exide Batteries of Canada, Limited, Toronto
"EXIDE", "EXIDE-IRONCLAD", "SILVIUM", "FORMAX", Reg. T.M. U.S. Pat. Off.

types of the several thermoplastic materials.

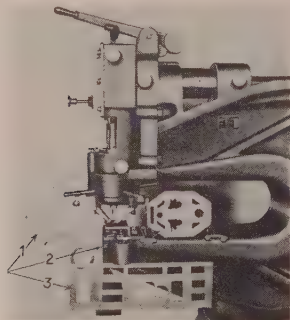
Method produces a continuous coating that leaves smooth outer cover which will not reduce flexibility of the product itself. Neither will it allow the coating to penetrate small openings in the item to be covered. Pyramid Plastics Inc., Dept. ST, 554 W. Polk St., Chicago 7, Ill.

FOR MORE DATA—CIRCLE REPLY CARD NO. 19

Metal Shape Nibblers

... cut 25-45 inches per minute

Only 90 seconds are required to make changes from cut to cut with this nibbler in a series of 30 inside cuts. The unit will cut 25 to 45 inches in any shape from flats, curves or irregulars to tubing. It



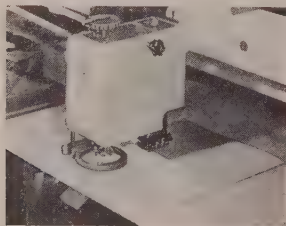
takes finished stocks up to 1/2-inch in thickness; milder alloys—ferrous or nonferrous—up to 1 inch without distortion. Tabor Mfg. Co., Dept. ST, 6225 Tacony St., Philadelphia 35, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 20

Automatic Tracer

... reproduces any template

Wide variety of metal shapes can be cut quickly and precisely with this Oxyweld automatic tracer mounted on an oxyacetylene



shape-cutting machine. The tracer reproduces accurately the shape of any template, even when design is extremely intricate. Templates

are easy to make. Desired shape is drawn to actual size on plastic sheet and cut out with scissors or knife.

There is no need to allow for kerf, since compensation is accomplished automatically by presetting tracer dial. Tracer can also be guided manually to follow a line sketch or blueprint directly. Stepless tracing speed ranges from 2 to 30 ipm. Linde Air Products Co., Div. of Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 21

Silicone-Asbestos Roofing

... saturates, preserves felts

Combining silicones with long-fiber asbestos, asphalt and non-evaporating waterproofing oils produces a roof coating of excellent durability. The product is reported to saturate and preserve roofing felts, extending elasticity and waterproofing life.

Another feature: Greater resistance to oxidation caused by hot



sun and industrial fumes. Material is applied without heating by brush or spray. Monroe Co. Inc., Dept. ST, 10703 Quebec Ave., Cleveland, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 22

Protecting, Insulating Coating

... capacities to 10,000 pounds

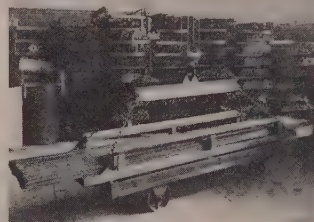
Racks, fixtures and anode hooks used in electroplating baths are insulated and protected by Kote-Rax Grade L, a plastisol coating. Tough and ductile, the coat will stand rough treatment and abuse. It has dielectric strength of 600v per 1 mil thickness at 20 to 25 thousandths.

The solvent-free product requires no ventilating system to carry away fumes during application. Hanson-Van Winkle-Munning Co., Dept. ST, Matawan, N. J.

Bar Stock Handling Racks

... 10,000-pound capacities

Bar stocks, pipe and other mill-length material can be handled in a bundle or loose, in capacities to 10,000 pounds, by these welded racks. The racks can be arranged



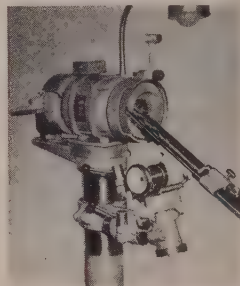
for handling with Heppenstall automatic tongs, with fork truck or wire slings and overhead cranes. They are fabricated of structural and formed sections. Fab-Weld Corp., Dept. ST, Pickwick and Richmond Sts. Philadelphia 34, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 23

Drill and Carbide Grinder

... drill change simplified

Two common hex nuts requiring wrenches are replaced with quick-action levers for greater operator convenience on this model DA drill and carbide grinder. Result is to



speed the simple adjustment for changing drill sizes and eliminate need for a wrench which frequently is unavailable. McDonough Mfg. Co., Dept. ST, Eau Claire, Wis.

FOR MORE DATA—CIRCLE REPLY CARD NO. 24

Vernier Calipers

... both scales on face of tool

Vernier calipers have been redesigned to give users more handling ease, convenience and accuracy. Improvements include fitted, adjustable vernier plates, both measuring scales on the face of the tool and double spaced vernier graduations. Both inside and outside measurements can be taken and read directly. Tool is made in

Sound?



Radiography removes the doubt

With the plane headed home and landmarks all "zeroed-in," the soundness of this casting becomes vitally important. For it is part of an aircraft instrument which must be accurate without fail.

That is why each of these castings is subjected to the searching eye of radiography. It is the way to be sure no hidden flaw, no gas holes or porosities exist.

Proving soundness with x-rays has become common practice with more and more suppliers of

quality castings. They have found it helps build an enviable reputation for delivering only good work. And besides, by radiographing pilot castings, changes in procedures are frequently indicated which increase the yield in long runs.

If you'd like details on how radiography can improve your operations, get in touch with your x-ray dealer. Or, if you like, write us for a free copy of "Radiography as a Foundry Tool."

EASTMAN KODAK COMPANY
X-ray Division, Rochester 4, N. Y.

Radiography...

another important function of photography

Kodak
TRADE-MARK



ENDWELDUR SLING CHAINS



Small AMERICAN Sling Chain Lifts 25,000-lb Load Safely

• This ACCO Registered 4-leg, Endweldur 125 Sling Chain is relatively light in weight yet it has sufficient strength to lift an expensive 25,000-lb die with safety.

This desirable combination of great strength and light weight is the result of scientific heat-treatment of the alloy steel used in this modern chain and the proper combination of engineered hooks and pear shaped links that make up a complete ACCO Registered Sling Chain assembly. This gives you a chain that is easy to handle and safe to use even where working temperatures run up to 1000°F.

Endweldur 125 ACCALLOY Sling Chains come in sizes from 1/4" to 1 1/4" with working load limits to 57,500 lbs per leg, so there is a size for just about every lift you have. Other AMERICAN Sling Chains are available in Endweldur 85 made of carbon steel, heat-treated . . . also stainless steel, monel metal and silicon bronze . . . and wrought iron.

**AMERICAN has a sling chain for your every need.
See your distributor or write our York, Pa. office today
for the ACCO Registered Sling Chain Catalog.**

ACCO



**AMERICAN CHAIN DIVISION
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York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles,
New York, Philadelphia, Pittsburgh, Portland,
San Francisco, Bridgeport, Conn.

**American
Chain**

NEW PRODUCTS and equipment

12, 24 and 36-inch sizes. Home-strand Inc., Dept. ST, Larchmont, N. Y.

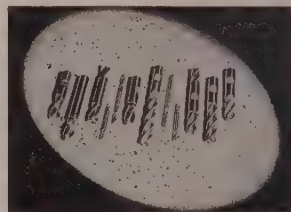
FOR MORE DATA—CIRCLE REPLY CARD NO. 25

Expanded End Mill Line

. . . high helix, curved undercut

Seven styles added to the manufacturer's standard line of end mills include long and extra long sizes, and small diameters.

Design is based on principle of high helix and curved undercut on



the tool face to produce maximum effective shear with long tool life. Size range is now complete with diameters from 1/16-inch to 2 inches. Goddard & Goddard Co., Dept. ST, Box 68, Brightmoor Station, Detroit 23, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 26

Surface Paintability Finish

. . . on rust-inhibited surfaces

Series of finishes, called Super Roxite, is marketed specifically for use over the rust inhibitor, Endurion. The series provides a wide range of colors, degrees of gloss and drying times. Finishes can be applied equally well by brushing, dipping or spraying. Norfolk Paint & Varnish Co., Dept. ST, Quincy 71, Mass.

FOR MORE DATA—CIRCLE REPLY CARD NO. 27

Bushing Connector

. . . aluminum or copper wire

Connectors allow utilities to join either copper or aluminum conductors to distribution transformers, in spite of different characteristics of the two metals. The high-voltage tank wall connector features a stainless steel followup spring which maintains a tight connection even when coldflow occurs. Copper-alloy components are tin-plated to retard galvanic action on contact with aluminum. General Electric Co., Dept. ST, Schenectady 5, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 28

STEEL



DOWN GOES DOWN-TIME with Permanente 84!

IN this report from a major steel mill you'll find convincing evidence that you can drastically reduce down-time for hot repair with Permanente 84 ramming and patching mix.

"Open hearths are operating well under usual heat times. Last month, heat time from tap to tap averaged seven minutes less than the previous best month on record. The use of Permanente 84 has helped cut delay time in half!"

Faster hot repair is possible with Permanente 84 because it's easy to use. Fewer repairs are needed between heats because it gives superior bottom performance.

Act now! Start using Permanente 84 for open hearth and electric furnace rebuilds as well as for bottom, bank and tap hole maintenance.

SEND FOR BOOKLET giving all the important advantages of Permanente 84 and the companion material, Permanente 165. Upon request, your Kaiser refractory engineer will promptly offer you research, design and installation service to help you obtain more steel tonnage per year, at lower bottom cost per ton. Call or write principal sales offices: Chemical Division, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.



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Basic Refractory Brick and Ramming Materials • Dolomite • Magnesite • Magnesite • Alumina • Periclase

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ACCURATE CONTROL AND MAXIMUM SAFETY

Accurate, long service VICTOR Safety Regulators are available for almost every use and gas, for delivery pressures up to 5,000 p. s. i., and flows to 50,000 c. f. h. Simplicity of design makes for ease of maintenance at low cost.

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Studies are being made at Lehigh University on how induction heating affects properties of steels. To control temperature of test piece heated in a Lepel high frequency furnace, a Leeds & Northrup Rayotube sights on sample between windings of coil. Temperature is controlled and recorded

Started—Recognizing this need, Leeds and Northrup three years ago began work on a new radiation detector that could be applied to induction heating. Certain requirements had to be met. First, it must focus on the small area between the coils of an inductor so it could sight directly on the surface of the product being heated. It must respond in less than a second to the almost instantaneous temperature changes characteristic of induction heating. It must also be able to withstand high ambient temperature without losing sensitivity.

Rapid Response—The new Rayotube radiation detector resulting from this work can measure temperatures from 800°F up. Mounted four inches from the inductor coil, it can focus on an opening as small as 0.1-inch between turns of the coil, and through this opening it sights on the hot surface of the work. Its housing can withstand surrounding air temperatures up to 350°F. When suddenly exposed to radiation of a work piece, the instrument will indicate 99 per cent of true temperature within 0.6 second. If temperature of the work is changing, the temperature indicated by the detector lags only 0.15 second behind that of the work.

Minute changes in radiation detected by the instrument are transmitted to an electronic recorder in the form of electrical millivoltage. This small electric current is amplified and automatically recorded on a chart calibrated in temperature degrees. When desired this recorder can also automatically control temperature by turning off current when temperature reaches a predetermined point or by positioning a rheostat to control power input of a generator or the speed of a moving conveyor carrying parts through the indicator.

How you can . . .

CONTROL TEMPERATURES IN INDUCTION HEATING

Minute changes in radiation detected in a fraction of a second by a new instrument are used to control and record temperature in induction heating applications

DIRECT temperature measurement of work heated by high frequency induction machines is possible with a radiation pyrometer developed to operate where speed of response must be fast and available target area is small.

Because final temperature is accurately measured, depth of hardness can be readily adjusted by varying power input. Result: quicker, surer setting up of induction hardening equipment. When combined with a suitable recorder or controller, the new Rayotube provides full control of induction heating directly from work temperature.

Need Was There—As the use of induction heating grew, there has been more demand for an accurate

method of determining temperature during the heating cycle. Control of product temperature is usually determined by time or speed. In batch processes the length of the cycle is timed. In continuous processes the speed at which work passes through the induction coils is controlled.

Although widely used, these methods have limitations. Basically they rely on an indirect measurement. Any slight error in speed or time is amplified into many degrees of temperature error. The same thing is true for changes in conditions such as fluctuating line voltage or frequency. Another point: The proper heating cycle for each different product must be determined by trial and error.



How to produce **strong, uniform welds** and save time doing it

Mine cars made of light weight low alloy, high strength steels mean bigger loads at savings in operating costs for mine owners. Strong, sound welds—able to resist the impact of loading, and the abrasion of filling and dumping also mean savings for the fabricator as well as additional savings in maintenance for the mine operator.

Because Arcos Low Hydrogen Electrodes can produce sound welds on a job like this, they can do the same thing for you on every *application* involving low alloy, high tensile steels. Whatever your requirements, there's an electrode to meet them. Rigid quality controls in manufacture assure you weld metal consistently high in quality and performance.

ARCOS GRADE	A. W. S. SPEC.
Tensilend 70	E7016
Tensilend 100	E10016
Tensilend 120	E12015
Mangenend 1M	E9015
Mangenend 2M	E10015
Nickend 2	E8015
Chromend 1M	E8015
Chromend 2M	E9015

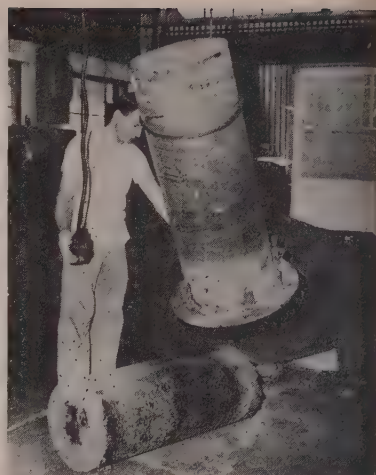
Write today for "The ABC's of Welding High Tensile Steels".

Arcos Corporation, 1500 South 50th Street, Philadelphia 43, Pennsylvania



WELD WITH ARCOS

LOW HYDROGEN ELECTRODES



MORE HOMOGENOUS INGOT
... yield is greater, too

New Ti-Melt Process

Method uses titanium electrode instead of carbon. Yield is greater, more homogenous

ONE of the leading producers of titanium and titanium alloys, Mallory-Sharon Titanium Corp., Niles, O., has developed a new melting process said to produce ingots with superior characteristics to anything presently known, and, in addition, increases the yield of metallic titanium from its sponge raw material, now in critical short supply.

Previously, two different methods have been used by various producers—arc melting and induction melting. Each method had its advantages and disadvantages, and neither was entirely satisfactory; arc melted ingots are not sufficiently homogeneous, while induction melted ingots have a carbon content that makes them undesirable for many applications.

Three Pluses—Advantages of the new melting process, designated by Mallory-Sharon as Method "S" are:

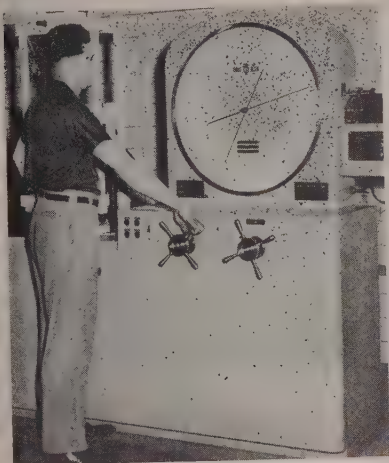
1. Ingots are homogeneous and display the same characteristics throughout. There are no variations in a sheet, for example, rolled from a single ingot. Ingots of a given type are reproducible, and the size and shape can be varied over a wide range.

2. Carbon content can be controlled exactly to any amount specified and held as low as the amount

herent in the sponge material. A titanium electrode is used in place of a carbon electrode, and the melting is accomplished in a crucible made of copper, which is water cooled. Since there is no carbon contamination, machining and welding characteristics are improved and impact strength is increased.

3. The yield is increased markedly, and more metallic titanium can be produced from a given amount of sponge raw material since scrap loss is reduced. Government is now granting large loans to expand sponge production, and the new efficient process will help ease the supply problem.

Flexible, Too — This melting process is flexible and can be used

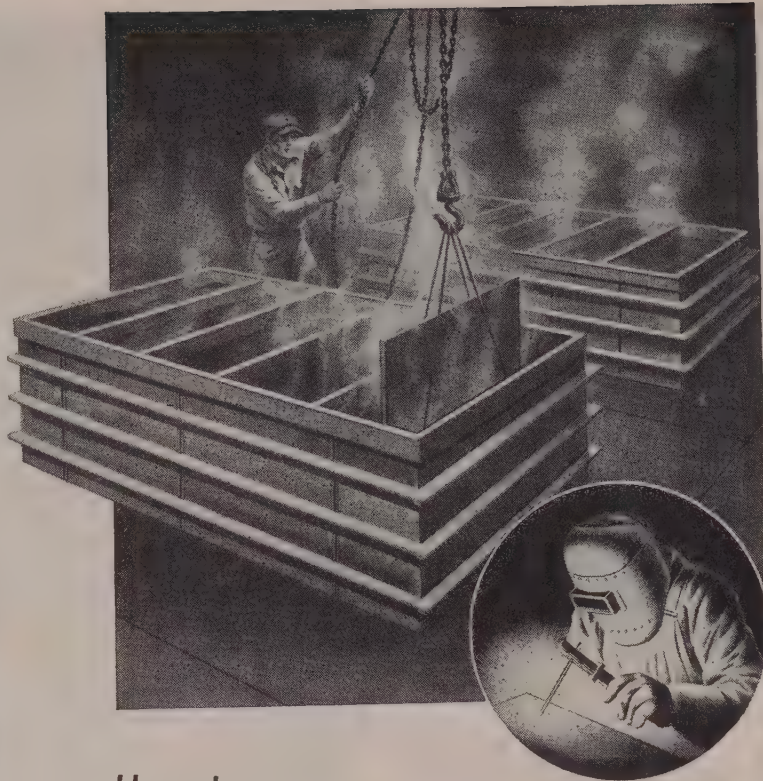


EXCLUSIVE TITANIUM LAB
... wrings secrets from metal

for a wide variety of alloys. While the bulk of the company's production is now devoted to its MST Grade III (commercially pure) light-gage hot-rolled sheet, its production of MST 3 Al-5 Cr alloy is being increased.

Strongest titanium base alloy now in production, it has a tensile strength of approximately 165,000 psi, excellent creep properties and high strength at elevated temperatures. This alloy, now being used almost exclusively in military aircraft production, will now be more desirable than ever, since carbon can be controlled while homogeneity is improved.

New Lab—At the same time, Mallory-Sharon officials formally opened their new industrial research laboratory, believed to be the first devoted exclusively to re-



How to **tame corrosion** fast and effectively on welded joints

Chemical tanks and equipment must have more than the proverbial nine lives to withstand incessant corrosive attack.

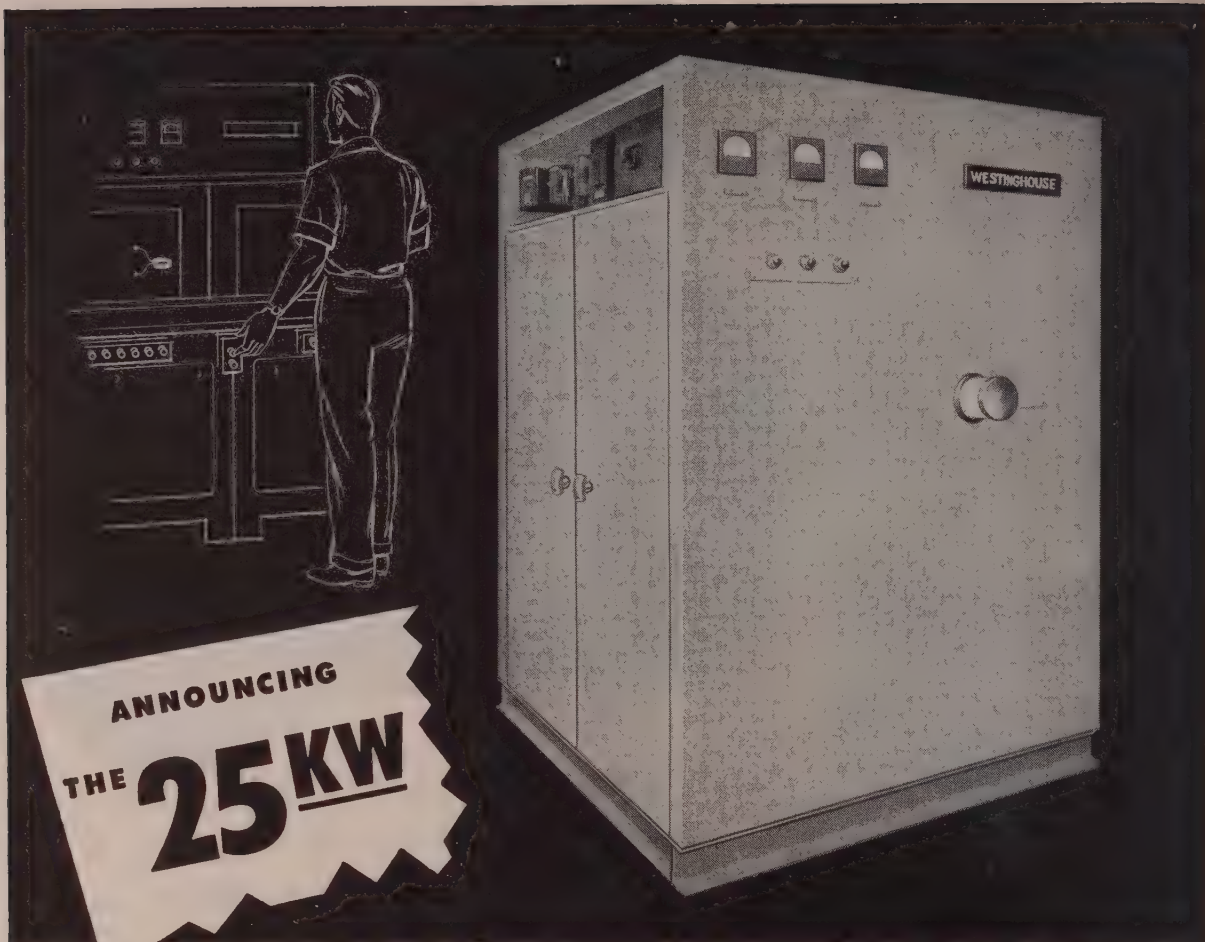
Proper plate material and good joint design are basic. The choice of the right electrode in some cases may be relatively easy—but always highly important. In other cases, where the corrosive action is intensified by heat and perhaps pressure, the proper balance of the chemical, physical and metallurgical properties in the weld metal will be critical.

For every *stainless* job, whether it be relatively simple or critical . . . there's an Arcos quality-controlled electrode that will pay handsome dividends in sound trouble-free *weld metal*. Send for a free copy "What Electrode Would You Use?"

Arcos Corporation, 1500 South 50th St.
Philadelphia 43, Pennsylvania



WELD WITH
ARCOS
STAINLESS ELECTRODES



NEW HF GENERATOR PUTS FULL POWER EVEN INTO LOOSE-COUPLED COILS AND NON-FERROUS LOADS

Westinghouse now presents a new high-frequency generator with 25 KW output at 100% duty cycle. For optimum performance, the new 25 KW has a tank kva of 1620. This means you can now put full power into a wider variety of loads . . . even where close coil coupling is impractical. Non-ferrous materials, like brass, copper and aluminum, can be heated in much shorter time. You benefit in higher production rates at lower costs.

This latest addition to the Westinghouse line of induction heating tools has many more outstanding benefits. Here are some of them:

- Allows positive, precise heat control of short production runs on a variety of jobs . . . or long production runs with rapid heat cycles. The built-in electronic keying of power output that makes this possible also eliminates main contactor arcing.
- Provides smooth variation of power output from 25% to 100%. This simplified power output system utilizes depend-

able, maintenance-free saturable reactors and longer-life, cost-cutting diode rectifier tubes.

- Gives complete protection against condensation and water-impurity troubles. The built-in distilled water cooling system and heat exchanger offers substantial raw water economy, too.
- Assures long tube life, peak performance and minimum maintenance by close regulation of filament voltages.
- Offers easy inspection and maintenance through the full-opening double doors; easier operation through a simplified combination of conveniently located controls.

The new Westinghouse 25 KW RF Generator is available now in this de luxe model. A standard model is also available with electronic keying and smooth power output control features as easily-installed optional accessories. Both models offer flexible, economical handling of hardening, annealing and metals-joining jobs. For full information write: Westinghouse Electric Corporation, Electronics Division, Induction Heating Section, 2519 Wilkens Avenue, Baltimore 3, Maryland.

YOU CAN BE SURE...IF IT'S **Westinghouse**

J-02270

search and development on titanium.

Facilities include a complete chemical laboratory, metallographic and spectrographic equipment, mill for hot rolling test specimens, furnaces for heat treating and melting, and an x-ray diffraction unit, in addition to the normal laboratory test equipment.

Heretofore, basic research and development work has been carried out at the Indianapolis plant of P. R. Mallory & Co. Mallory's original research on titanium was started at the beginning of World War II, and Mallory-Sharon came into being in 1951 to combine the production facilities and techniques of Sharon Steel and Mallory.

Oxycats Kill Wax Fumes

PLANT ENGINEERS of the RCA Victor Division, Radio Corp. of America, Camden, N. J., have used an oxidizing catalyst to make life more livable for their fellow engineers working in the company's eight-story engineering office building.

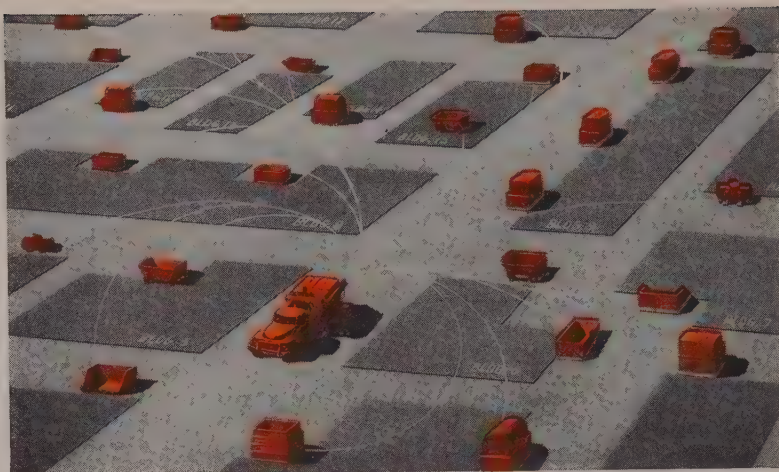
Plagued by irritating smoke containing wax fumes and particles that blew into this building from a nearby exhaust stack, the company installed a bed of the new Oxycats to oxidize the noxious fumes at their source—a burn-off oven in RCA's powdered metals division.

Checks Hazard—In addition to checking an annoying smoke problem, the Oxycats eliminated a serious fire hazard and have helped maintain consistent quality of the powdered metal cores manufactured by this division.

To combat its wax-laden exhaust, RCA installed a bed of 204 Oxycats above the burn-off oven. Each individual Oxycat, measuring $5\frac{1}{2}$ inches long, $3\frac{3}{8}$ inches high and 3 inches wide, is made up of two thick porcelain end plates and, between them, a porcelain spacer bar and 73 coated porcelain rods.

Paraffin fumes flow across these rods. Combustion of the fumes occurs at the surface of the rods where they are coated with a 0.003-inch film of catalytic agent—catalytic alumina and platinum alloy.

Preheater—The Oxycat normally supports combustion at about 500° F. Since the burn-off oven exhausts at about 300° F, a pre-



What you can do about your high cost of bulk Materials Handling

The picture above tells the whole story of the Dempster-Dumpster System of Bulk Materials Handling. Never before have you been able to cut bulk materials handling costs so drastically! One truck-mounted Dempster-Dumpster handles the entire group of Demp-

ster-Dumpster Detachable Containers. It's like having scores of truck bodies for a single truck.

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Each container is designed and built in the desired size up to 12 cu. yds. to suit the materials to be handled—be they solids, liquids or dust . . . hot or cold . . . bulky, light or heavy. You can handle, at tremendous savings, materials of many descriptions—trash and waste materials, raw materials, finished products, etc.—with only one truck and only one man, the driver. Write to us for complete facts. Manufactured exclusively by Dempster Brothers, Inc.



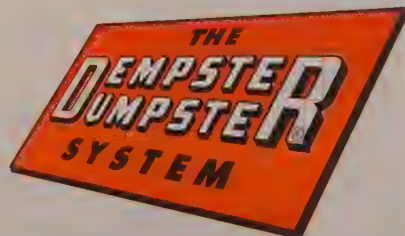
PICK UP



HAUL



DUMP

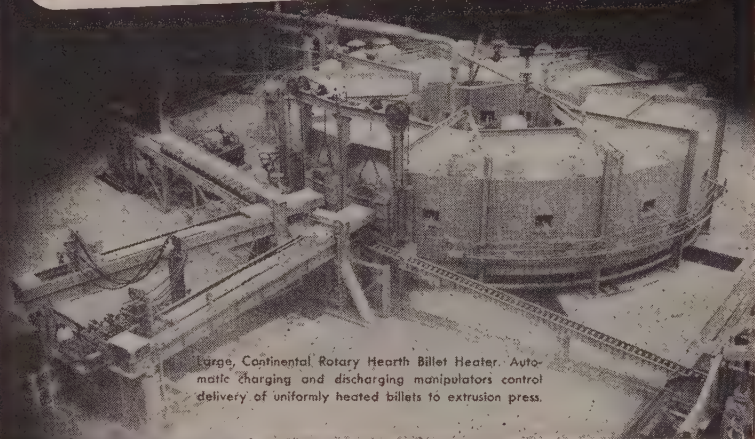


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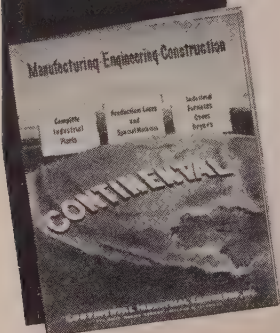
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**SPECIAL MACHINES
COMPLETE PLANTS**

MANUFACTURERS—ENGINEERS—CONTRACTORS FOR OVER A QUARTER OF A CENTURY



Fanning Sheets

Difficulty in separating embossed metal sheets in Electrolux Corp.'s Old Greenwich, Conn., plant was overcome by this Basco magnetic separator. Previously, vacuum cleaner stampings had to be separated by hand. Now the operator picks up a quantity of sheets and places them against the separator, which fans out each piece

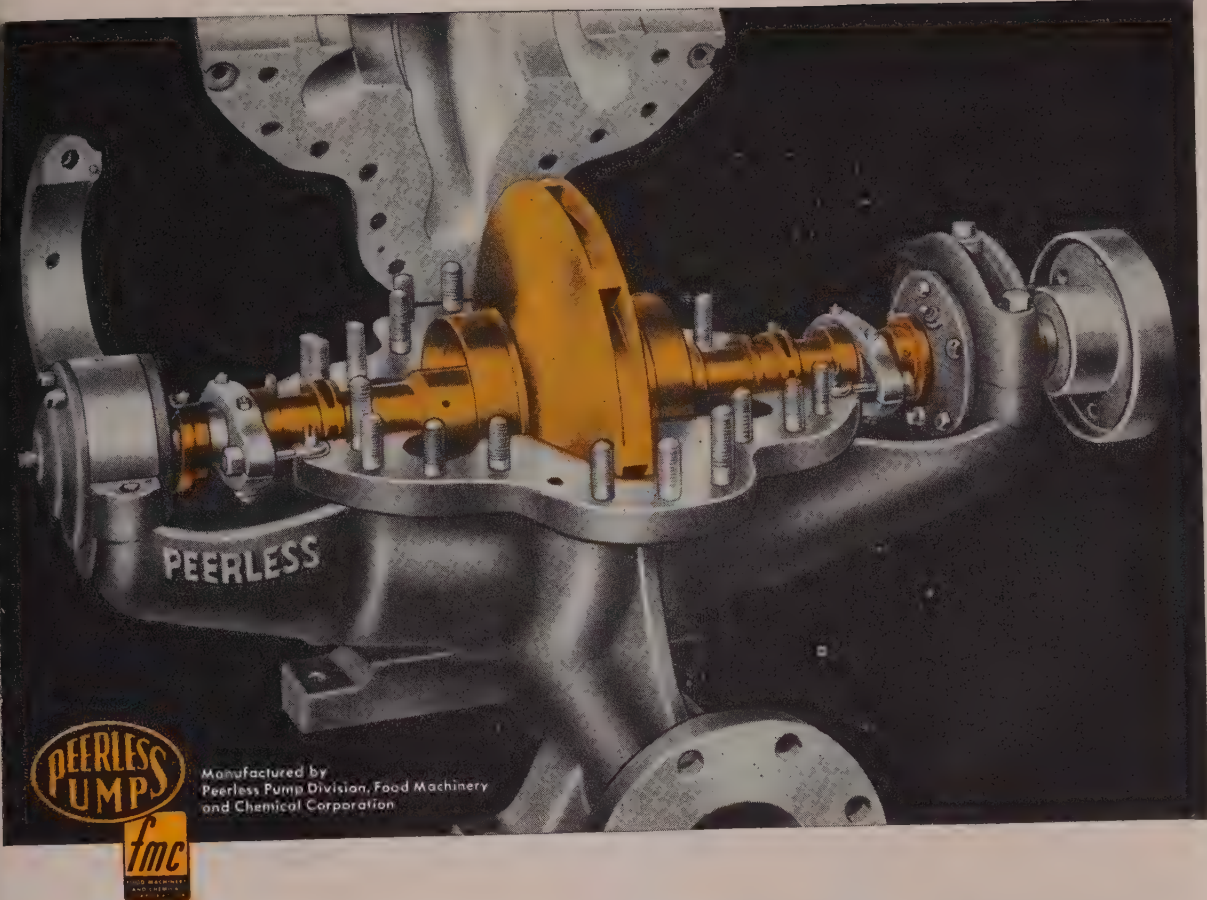
heat combustion chamber was installed to raise oven exhaust to this design temperature. The catalyst, in turn, contributes a heat rise of 50-100 degrees to the exhaust stream.

RCA is now exhausting a clean, safe effluent to the surrounding atmosphere. Plant engineers may, in the future, recirculate the catalyst exhaust back to the burn-off oven to recover heat developed by both the pre-heat burner and the catalyst itself.

Another Manganese Process

As much as half the steel industry's manganese requirements may be recovered from open-hearth slag if a process being tested in Pittsburgh proves feasible economically. This process, was developed in a project sponsored by American Iron & Steel Institute and the Bureau of Mines.

AISI reports its method consists of a two-stage treatment in which open-hearth slag is treated in a blast furnace, then in a basic converter. They say no unusual technical difficulties are present, but the cost of recovery, as in the past, might outweigh the material's value if conducted on a large scale.



When fire strikes IT PUMPS PROTECTION

This is the heart of reliable systems that protect against hazards of fire

America's annual loss to the ravages of fire is a staggering amount. Reliable plant and property protection often begins with an independent fire protection system, the heart of which is an approved and reliable fire pump. In the manufacture of fire pumps, rigid construction requirements and operational dependability are paramount. This is why National Bearing Division was selected to supply bronze impellers, wearing rings, and shaft sleeves, for this fire pump and other pumps bearing the Peerless name.

In supplying component fire pump parts to Peerless, a supplier must not only meet the rigid requirements of this manufacturer, but also the strict regulations of Under-

writers' Laboratories, Inc.; National Board of Fire Underwriters, Chicago; and the Inspection Department, Associated Factory Mutual Fire Insurance Companies, Boston.

National Bearing's proved ability to mass produce exceptionally fine-grained, non-ferrous castings, free from blow holes and sand inclusions, combined with Peerless Pump Division's exacting engineering and manufacturing standards help build fire pumps, and industrial pumps that can be counted to pump a reliable water supply for fire protection or other plant needs.

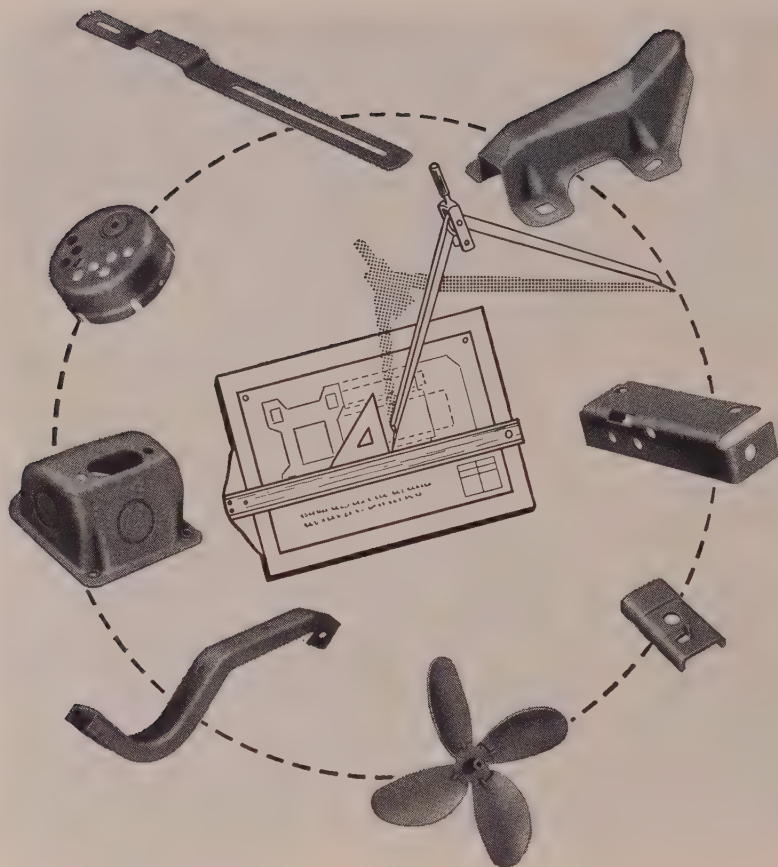
If your product requires non-ferrous castings or bearings, National Bearing Division has the foundry facilities, experience and skill that will insure better product performance and may possibly lower product costs.

Brake Shoe

NATIONAL BEARING DIVISION

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To a large extent the cost of your product is determined right on the drawing board. In designing new products or redesigning old ones don't overlook the cost-saving advantages of metal stampings. Many progressive manufacturers have cut cost of component parts up to 75% by converting from castings to stampings. Savings of 50% are common.

Geometric engineers, skilled in the analysis of all kinds of stamping problems are glad to show you how your product, or parts of it, can be made better, lighter and at much lower cost in our modern high-production stamping plant. You get another efficient manufacturing department for your business — without overhead expense or operating worry.

It pays you to send your blueprints for quotation—today.



GEOMETRIC STAMPING CO.

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Cleveland 17, Ohio

Predicts Turbine Life

Machine simulates the heat and vibration conditions that torture gas turbine blades

A WAILING, complaining inferno of a machine that puffs and blinks and blasts but doesn't move has been developed by scientists of the General Electric Research Laboratory in Schenectady, N. Y., to imitate a whirling turbine.

Designed to aid in predicting how modern gas turbine buckets will hold up after years of service, the raucous device simulates conditions present in the modern turbine. Such buckets, shaped somewhat like small propeller blades, are mounted on turbine rotors to take the impact of hot gases blown against them to turn the rotor.

Off and Running—With an eerie howl and a beady, blinking light, the machine blows a scalding hurricane of gas through a slotted wheel against the bucket. Timed electronically to reach a critical resonance, the sound produced soon sets up a destructive vibration in the tapering bucket.

A winking blue stroboscopic light then "stops" this motion to reveal to scientists how much the bucket oscillates. Further details about strains placed on the metal are relayed to a battery of recording machines mounted on a nearby instrument panel.

Fast, Inexpensive—Information leading to valuable predictions about metal performance of the buckets under stress can be determined in a matter of minutes by the machine, according to R. V. Klint, G-E scientist who developed the vibrator.

Another important use of the machine, he reported, is in studying conditions that help buckets withstand vibratory forces. One such effect, called damping, is the restraint inherent in metals and bucket designs that prevents excessive vibrations during actual turbine operation. Rupture of the buckets could otherwise result.

"By using the laboratory machine, we are able to measure the magnitudes of these sources of damping and can test and develop various ideas which should put damping at the maximum for a given turbine design," the young scientist added.



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- **Available from stock with either straight or tapered bore**—for shaft or adapter mounting.

These advantages add up to maximum performance for your bearing dollar. That's why it always pays to specify TORRINGTON Spherical Roller Bearings.

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HINGED PLATFORM
... truck folds to measure

Dilemma of Dimensions

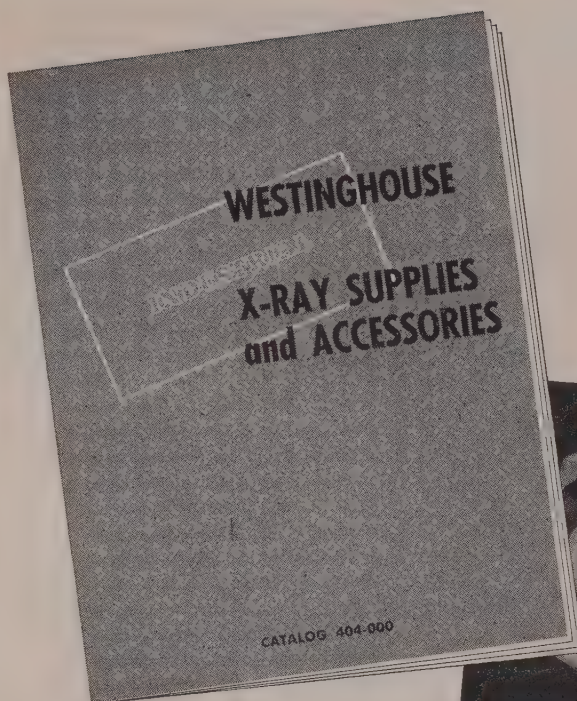
A TOO-SHORT freight elevator promised to force a tough decision on a Chicago manufacturer. When the firm had to start transporting a standard powered platform truck on its elevator, it found the truck extending about 17 inches beyond the doors.

A thorough study of the best load unit indicated skidded loads that required a standard 4000-pound platform truck. But truck design showed a minimum 72-inch platform length, overall 137-inch truck length. Short of reconstructing the elevator—a somewhat expensive alternative—a method of redesigning the truck had to be devised if optimum loads were to be carried.

Collapsible Truck—The company counseled with engineers from Elwell-Parker Electric Co., decided they could use the same truck—with a minor change. They equipped their standard unit with a hinged platform, then hinged the operator's pedals too, slipping the lift neatly into the cramped freight hoist as a result of the alterations on the front and rear.

When riding the elevator, the front end of the truck's platform now folds back about 17 inches. Control pedals swing aside to produce a bit of additional clearance, reducing the overall length to 118 inches.

The two alterations, say Elwell-Parker, in no way affect normal handling work. Capacity limits remain the same.



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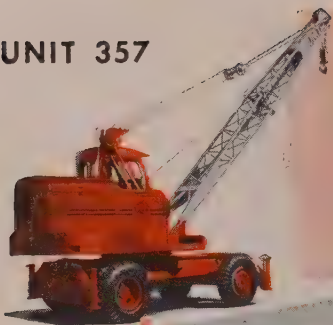
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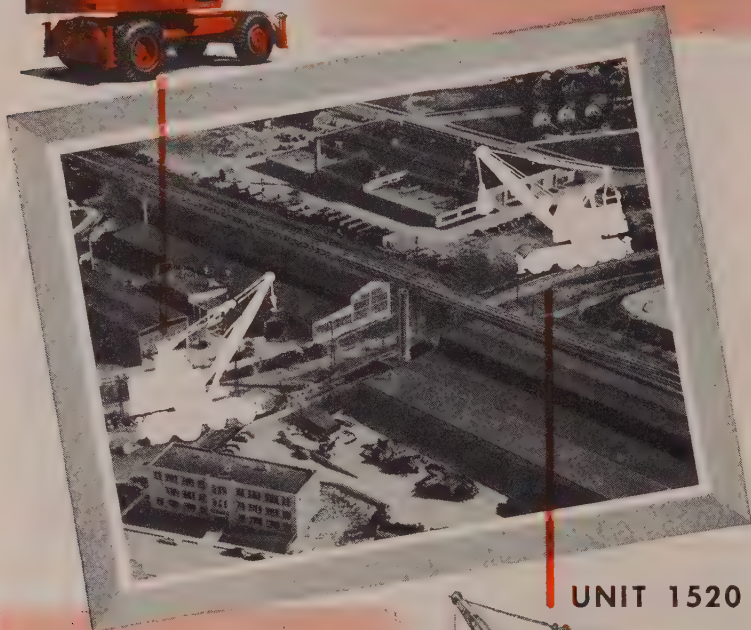
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You'll find a UNIT Mobile Crane is just the machine you need for the many material handling jobs around your plant. It's self-propelled, rides on rubber, travels anywhere. It has 1001 uses, in and out of yard. Works efficiently even in small yards where space is limited. Controlled and operated by ONE man. Powered by ONE engine. Balanced weight distribution in upper structure adds full-length stability to undercarriage. Provides full-circle, fast-cycle operation. Easy hydraulic steering. Streamlined, FULL-VISION Cab gives operator complete visibility in ALL directions. Promotes safety. Investigate these Mobile Units!

UNIT 357 — Versatile, compact, lightweight Mobile Crane, ideal for your yard lifting and loading jobs. The smoothest operating and easiest handling crane on the market. Mounted on 6 pneumatic tires, duals on rear. Capacity 10 tons. Ask for Catalog L-301.

UNIT 1520 — Heavy-duty, self-propelled Mobile Crane — another UNIT advancement in modern, high-speed, rubber-tired equipment. Lifting capacity up to 20 tons. Mounted on 12 pneumatic tires, with duals on steering axle and tandem rear axles. Ample power for the toughest jobs. Ask for Catalog 502.

UNIT CRANE & SHOVEL CORP., 6521 W. Burnham St., Milwaukee 14, Wis., U.S.A.

Crawler and Mobile models — 1/2 and 3/4 Yd. Excavators. Cranes up to 20 tons capacity.



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A 5997-2/3C

Machining Stainless

DIRECT TOOL COST savings of about \$7 per 1000 parts produced is a report from one job done with indexable square carbide inserts. Additional savings resulted from minimized tool changing and grinding time at this midwestern manufacturer's plant. Work was done in rough-turning forged 321 stainless steel jet engine nozzles.

Heretofore the operation was handled with brazed carbide tools at 0.0045-inch feed, 150 sfm and 0.093-inch depth of cut. Using these tools best life was 50 to 60 pieces per grind, or a total of 640 pieces per tool. Under this setup, tool cost per piece was 7 tenths of a cent.

Four-Sided Cutting—Using Kenametal tungsten carbide square insert tools, grade K6, 325 to 350 pieces are turned per cutting edge at a feed of 0.003-inch per revolution. Depth of cut is 0.093-inch at 1480 rpm and 490 sfm.

Lathe used in the operation is a No. 3 Warner and Swasey of 10-hp. With four cutting edges available on each end of the clamped insert, an average of 2700 pieces are machined between grinds. Since about 1/32-inch of stock is removed from each of the insert's ends in regrinding, estimated number of pieces per insert is 32,400.

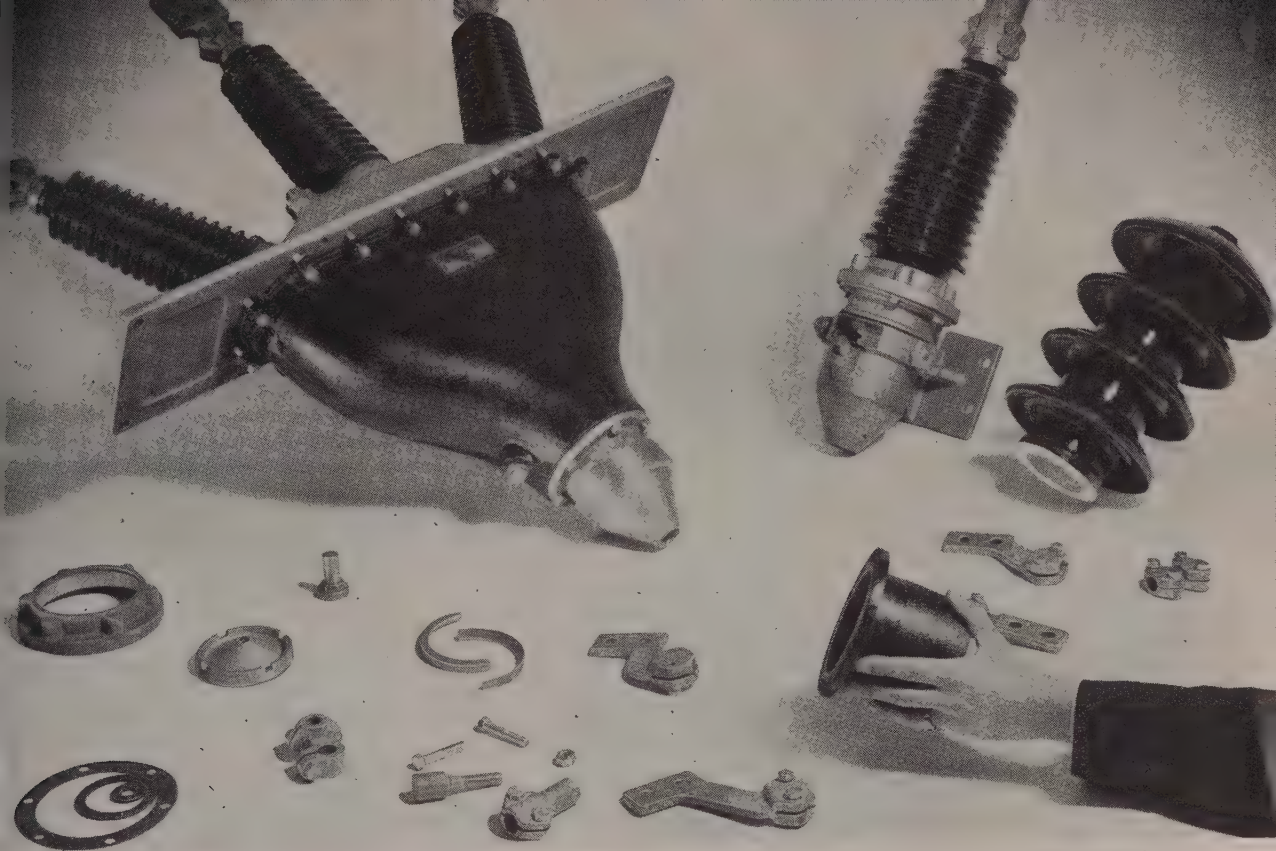
Cost Analysis — In running a cost analysis on the use of the new tool, the producer found that with the tool holder being used for the life of five inserts, tool cost per piece averages about 1/28 of a cent.

To turn 32,400 pieces with a brazed tool would have required approximately 50 tools at \$4.55 each or a total cost of \$227.50 or \$0.0007 per piece produced.

ASTM Petroleum Standards

A second edition of American Society for Testing Materials' manual for measuring and sampling petroleum and petroleum products presents practical measuring practices in use today.

The manual, consisting of seven ASTM standards in its 150 pages, is available from the society at 1916 Race St., Philadelphia, for \$1.50.



Lugs, insulators, bell shapes, and cable entrances are all interchangeable. This is an important feature of Anaconda Potheads.

ANACONDA POTHEADS

This complete line is engineered by power-cable specialists for use with *any* make of cable. Parts are *fully* interchangeable for greater adaptability, faster delivery, easier installation and lower cost.

Not hundreds—but thousands of different ANACONDA Potheads can be made up from relatively few interchangeable parts. There's a type for every use—capnut, transformer, switch-gear, disconnect, and through types.

Over 2000 different pothead assemblies can be furnished from standard parts for any particular conductor size and voltage rating in the multi-conductor capnut type alone!

To keep pace with the increasing demand for ANACONDA Accessories, it has been necessary again to greatly increase the facilities of the Cable Accessories Department. This Department is now in a position to promise prompt shipment on most of your orders.

Service continuity demands both power cable and its accessories built to highest standards. Top performance from ANACONDA Cable Accessories is assured because they are designed by engineers who are power-cable specialists.

Make Anaconda your headquarters for potheads, jointing kits, insulating compounds, paints, etc. For help on your cable and installation problems

call on your Anaconda Representative to get the benefit of Anaconda's engineering experience.

52461

Accessories for all types and sizes of bare and insulated conductors.

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Send me Anaconda's new 100-page Pothead and Terminal Catalog for use as a reference book and to simplify ordering and specifying.

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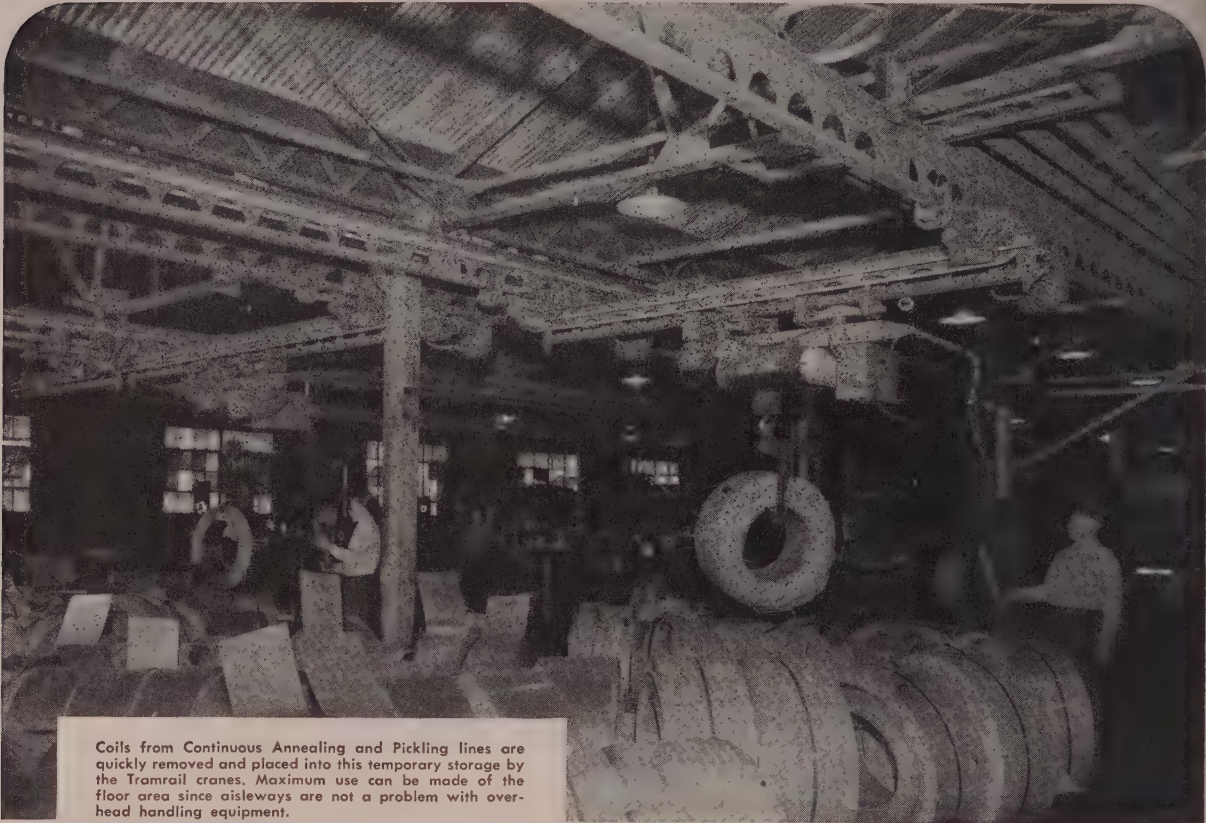
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Replacement of damaged insulators is simple on Anaconda Potheads. Note the ease with which any insulator can be quickly inserted.

Tramrail Cranes **BOOST** Strip Production

Speed Handling—Cut "Down Time"—Aid Safety



Coils from Continuous Annealing and Pickling lines are quickly removed and placed into this temporary storage by the Tramrail cranes. Maximum use can be made of the floor area since aislesways are not a problem with overhead handling equipment.

AS a leading producer of high quality alloy strip steels, mostly of light gauge, the Superior Steel Corp., Carnegie, Pa. has secured definite production advantages and greatly improved overall plant efficiency through abundant use of Cleveland Tramrail cranes.

As the work is primarily that of rolling, annealing, pickling and handling, to obtain maximum production from their equipment, it is necessary to keep it in operation as many minutes out of the day as possible. This means that there be no

delays in handling the coils of strip to and from the mills. It also means that the mill rolls must be changed in the least possible time. The Tramrail cranes have proven of great success in fulfilling these requirements and reducing "down time" to a minimum.

They have also proven to be a great aid to the workers' welfare. Being fully motorized, they have practically eliminated all manual lifting and moving. As a result, worker fatigue has been reduced and safety improved.



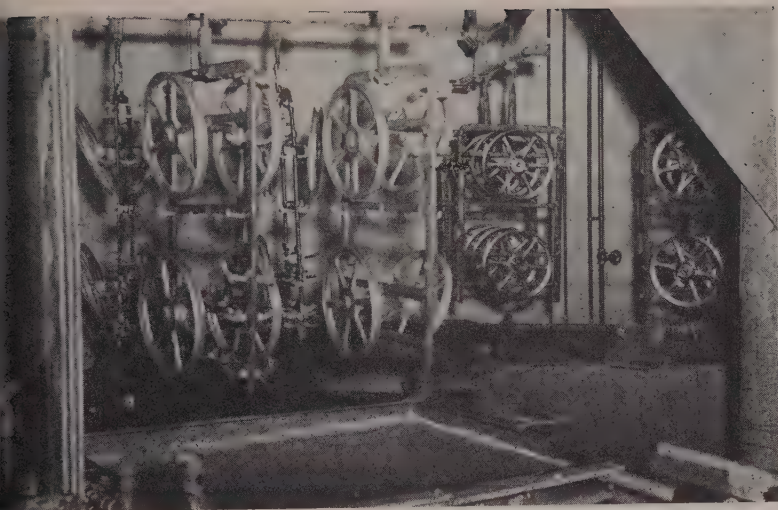
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CLEVELAND TRAMRAIL

OVERHEAD MATERIALS HANDLING EQUIPMENT



A finish with chrome-like appearance is produced on these zinc die wheels by first zinc plating, then treating in a chromate bright dip solution. Parts are given a Unichrome clear lacquer dip to seal in bright finish

(Continued from p. 110)

tained with zinc alloys where the lubrication problem is not nearly so severe.

Check These Points—Final costs in die casting are made up of the following: 1. Cost of raw material; 2. Cost of fabrication; 3. Cost of machining to final dimensions; 4. Cost of finishing; and 5. Cost of assembly. All these have a bearing on selection of the right material and method of production.

Company X, a manufacturer of portable power tools uses aluminum die castings for most parts rather than sand castings for the following reasons: Surface finish; low tolerances; thin wall strength; light weight and portability; reduction in machining by coring instead of drilling parts. However, if product requirements are in the range of 2000 to 5000 they usually specify sand castings. If over this figure and particularly if over 10,000, die castings are specified.

In general, Company X tries to avoid combination dies but will use multiple cavity dies wherever possible. Tolerances are close—plus or minus 0.002 to 0.003-inch. In castings requiring a core they try to keep the number of pieces in a die to a minimum and if possible eliminate undercuts. Most of their product requirements are sand cast before going into production die casting.

Influence Buying — Here are

some factors officers at Company X consider when they issue an order for die castings: Recommendations by the die caster; Situation in the die casters shop; Past performance of the die caster, that is, how close they generally come to getting the first production casting right. Take for example a field switch case, an aluminum die casting in the medium to large size.

In this case Company X finds that it takes about 14 weeks to have a die made and a sample casting submitted, and an additional 6 to 8 weeks for final approval. This is considered to be good performance on a rather difficult casting of this type.

Protective Gleam—Finishability is a prime consideration in the design and production of metal parts of all kinds. Die castings are no exception. Very often finishing requirements, such as bright chrome plating, tip the scales in favor of zinc base parts. Plated copper-bright nickel-chromium are widely used as a decorative and corrosive resistant finish for zinc die castings. Chrome plating of aluminum and magnesium base parts is more expensive. Here, a zinc immersion film is deposited on the surface prior to plating. Painting is a satisfactory finishing method if parts are thoroughly cleaned and given a phosphate or chromate treatment first.

Appearance and cost are not the

only considerations in selecting a finish for die castings. Parts must also give efficient service for the life of the article. A two-year research program conducted by Chrysler Corp., Dow Chemical Co. and Doehler-Jarvis Corp. involved exposure of bright chrome plated zinc, aluminum and magnesium die castings to different atmospheres.

What's Needed — Conclusions were drawn from these exposure tests on the protection afforded by various thicknesses of copper and nickel when applied to the three alloys: To give adequate protection against corrosion of zinc, aluminum and magnesium die castings for one year, a total plate thickness of 0.002-inch is needed. On zinc die castings, the protection given by the plate was proportional to its thickness; however, additional protection gained by depositing more than 0.00125-inch was comparatively small.

In general, the protection of aluminum or magnesium alloy for one year given by a 0.00125-inch plate was inadequate, but was increased tremendously by an additional 0.00075-inch of plate. One exception here: Magnesium alloy in a rural atmosphere, which closely followed that of the zinc alloy.

Corrosion of plated aluminum alloys progressed along the interface of the plate and the base metal, once there was a break in the plate. Corrosion of the plated magnesium alloy progressed into the base metal, forming craters of ever-increasing size, giving voluminous gray corrosion products.

Substitute Finishes — Governmental restrictions on both end uses and quantity of nickel for electroplating has caused a frenzied search for some alternate coatings.

A bright zinc-copper alloy plating process, called white brass, is being marketed by several suppliers and is being used in some die casting finishing work. The deposit is rather highly stressed and is quite brittle. Because of this, it is not practical to deposit coatings having a thickness much in excess of 0.0003-inch. Plating chromium over the white brass may aggravate the stressed condition of the deposit. There are also corrosion limitations. White corrosion prod-



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Send note on Company Letterhead for 488-Page Catalog 49

Here's Proof



SINCE defense restrictions on nickel-bearing stainless steel, many questions have been raised regarding type 430, used as an alternate. Here's an example that answers affirmatively one poser: Can type 430 be electropolished successfully?

A grill used in sand urns or smoking stands—like the kind found in theaters—was formed of 3/16-inch round Armco type 430 cold-drawn stainless, then electropolished after fabrication. Its surface is smooth, bright, uniform.

ucts, characteristic of zinc, may appear on white brass-plated parts in a few weeks exposure to weathering unless protected by a durable synthetic lacquer.

However, for mild exposure such as interior auto hardware, novelty items and household goods not exposed to moisture, high humidity or corrosive vapors, the finish appears to be reasonably satisfactory. White brass has one advantage in zinc die-cast plating not evidenced in plating ferrous base materials. It avoids contamination of bright nickel solutions with zinc from the unprotected internal surfaces of castings. Conceivably, this may lend impetus to continuing use of white brass plating on some zinc die castings regardless of the nickel situation.

Others—Copper-chromium plate is being used in some applications. The use of a baked clear enamel on copper-chromium is necessary for outdoor use but is being less frequently specified for indoor use. Flash nickel coatings, as permitted by NPA, are also being used between copper and chromium coatings. One large producer of functional auto accessories is using 0.0007-inch of copper and 0.0003-inch of nickel followed by chromium on zinc die cast parts in exterior locations. A finish with chromium-like appearance is produced on zinc die castings by first zinc plating, then treating in a chromate bright dip solution. A clean enamel may be used to seal in the bright finish.

**which of these feed-in duct features
rate highest with you?**



architects

rate these **SQUARE D** features
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- lowest known voltage drop**
... maximum efficiency,
minimum power loss
- smallest cross-sectional
area** ... conserves valuable
installation space



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give these features
top billing:

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simplified components,
factory prefabrication
- new joint design** (lower right)
... all joint ends identical,
connection bolts face outward
- interchangeable standard
fittings** ... permit horizontal
or vertical riser applications



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vote these
SQUARE D features tops:

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and maintenance** ...
most accessible connections
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excludes dust
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rearrangement with the
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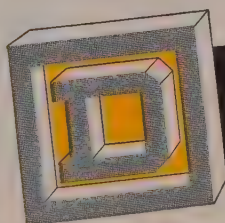


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SQUARE D's exclusive joint design
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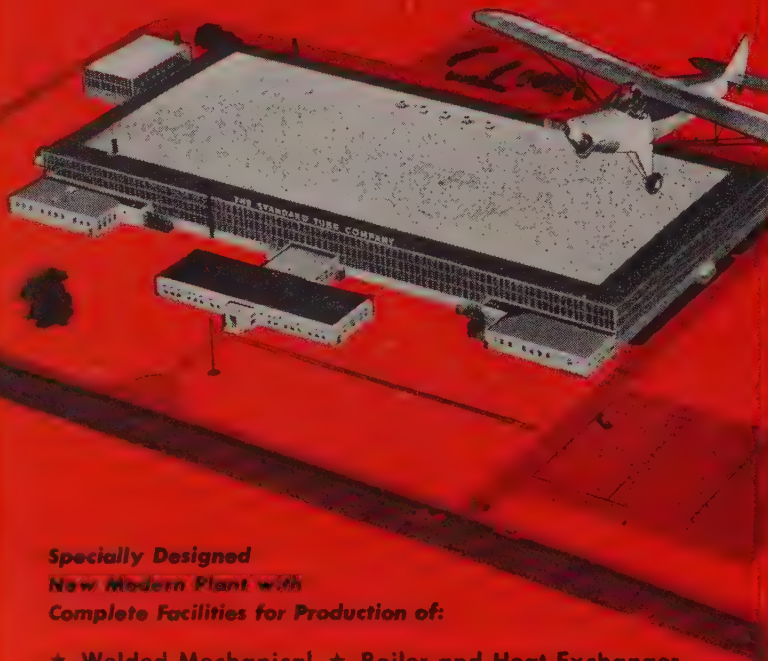


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★
STEEL TUBING SIZES: ½" O.D. to 5½" O.D. .028 to .260 wall
STAINLESS SIZES: ¾" O.D. to 3" O.D. .028 to .095 wall

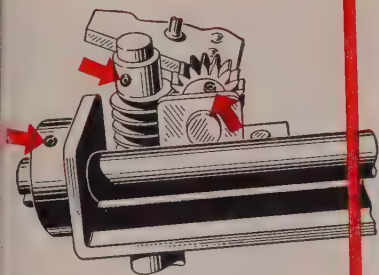
CALENDAR OF MEETINGS

- July 23-24, Truck-Trailer Manufacturers Association Inc.:** Annual summer meeting, Edgewater Beach hotel, Chicago. Association address: 1024 National Press Bldg., Washington. Managing director: John B. Hulse.
- August 17-19, Society of Automotive Engineers:** International West Coast meeting, Georgia hotel, Vancouver, B. C. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.
- August 19-21, Institute of Radio Engineers:** Western electronic trade show and convention, Civic auditorium, San Francisco. Business office: 1355 Market St., San Francisco 3. Business manager: Heckert Parker.
- August 23-26, National Automatic Merchandising Association:** Annual convention and exhibit, Hotel Conrad Hilton, Chicago. Association address: 7 S. Dearborn, Chicago. Secretary: C. S. Darling.
- September 1-4, American Institute of Electrical Engineers:** Pacific general meeting, Hotel Vancouver, Vancouver, B. C. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.
- September 6-11, American Chemical Society:** Fall meeting, Hotel Conrad Hilton, Chicago. Society address: 1155-16th St., NW, Washington 6. Assistant secretary: R. M. Warren.
- September 10-12, Rocky Mountain Management Club:** Rocky Mountain industrial exposition, University of Denver arena. Club address: 1031 15th St., Denver 2. Executive secretary-treasurer: Harold S. Craig.
- September 13-16, Electrochemical Society Inc.:** Fall meeting, Ocean Terrace hotel, Wrightsville Beach, N. Carolina. Society address: 235 W. 102nd St., New York 25. Secretary: Dr. Henry B. Linford.
- September 14-16, Allied Railway Supply Association:** Annual meeting, Hotel Sherman, Chicago. Association address: 1200 W. Chase Ave., Chicago 28. Secretary: Charles F. Weil.
- September 20-23, Packaging Machinery Manufacturers Institute:** Annual meeting, Skytop Lodge, Skytop, Pa. Institute address: 342 Madison Ave., New York 17. Secretary-treasurer: Helen L. Stratton.
- September 20-23, American Institute of Wholesale Plumbing & Heating Supply Associations Inc.:** Annual convention, Hotel Waldorf-Astoria, New York. Institute address: 402 Albee Bldg., Washington. Executive secretary: George T. Underwood.
- September 21-22, Steel Founders' Society of America:** Fall meeting, The Homestead, Hot Springs, Va. Society address: 920 Midland Bldg., Cleveland. Secretary: F. Kermit Donaldson.
- September 21-23, Truck Body & Equipment Association Inc.:** Annual meeting, Sheraton-Gibson hotel, Cincinnati. Association address: 1122 DuPont Circle Bldg., Washington 6. Executive manager: Arthur J. Nuesse.
- September 21-24, American Mining Congress:** Annual metal and nonmetallic mineral mining convention, Olympic hotel, Seattle. Congress address: 1102 Ring Bldg., Washington 6. Executive vice president: Julian D. Conover.
- September 21-25, Instrument Society of America:** National instrument conference and exhibit, Hotel Sherman, Chicago. Society address: 1319 Allegheny Ave., Pittsburgh. Manager: P. V. Jones Jr.
- September 28-30, Association of Iron & Steel Engineers:** Annual meeting, Hotel William Penn, Pittsburgh. Association address: 1010 Empire Bldg., Pittsburgh. Managing director: T. J. Ess.
- September 28-30, National Electronics Conference Inc.:** Annual conference, Hotel Sherman, Chicago. Conference address: 852 E. 83rd St., Chicago. Executive secretary: Karl Kramer.
- September 29-October 3, Society of Automotive Engineers:** National aeronautics meeting, aircraft engineering display and aircraft production forum, Hotel Statler, Los Angeles. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

Here fly
90 Rollpins



ROLLPINS saved The Glenn L. Martin Co. \$6,300



A typical application, not included in the pilotless bomber above. Rollpin is driven into standard holes, compressing as driven. No taper reaming is required. Rollpin fits flush . . . is vibration-proof.

The Glenn L. Martin Company cut fastening costs on a single missiles contract by \$6,300, as compared to dowel pins . . . by \$11,700 as compared to taper pins! These installed cost savings, recently announced to Company engineers, were made possible by the use of just 90 Rollpins per unit.

ESNA Rollpin is the slotted tubular steel pin with chamfered ends. It is simply driven into standard holes, compressing as driven. The Rollpin's spring action locks it in place—regardless of impact

loading, stress reversals or severe vibration—that's why Martin was able to make these savings on this contract for pilotless bombers.

No precision-drilling, threading or peening . . . no extra operations!

If you use locating dowels, hinge pins, rivets, set screws . . . or straight, knurled, tapered or cotter-type pins—Rollpin can cut your costs, too. Just mail the coupon for design information.



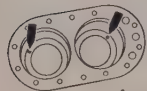
as a rivet

ROLLPIN

TRADE MARK



a hinge pin



a dowel



a set screw

Dept. R21-760, Elastic Stop Nut Corporation of America
2330 Vauxhall Road, Union, New Jersey

Please send the following free fastening information:

☐ Rollpin Bulletin

☐ Elastic Stop nut bulletin

☐ Here is a drawing of our product.
What self-locking fastener would
you suggest?

Name _____ Title _____

Firm _____

Street _____

City _____ Zone _____ State _____

New Pickling Inhibitor Preserves Surface During and *AFTER* Scale Removal

Houghton "Acitrol 3129" effective across-the-board . . . assures minimum breakdown over long periods at high temperatures!

SAVES STEEL AND ACIDS

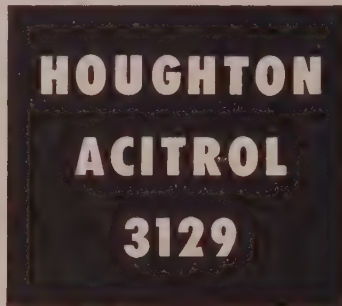
This new liquid inhibitor does the vital job of protecting the metal against acid attack after the scale is removed as well as during the operation. Acid is conserved while the steel is preserved. Acitrol also prepares the surface for good coverage of subsequent finishes.

RESISTS BREAKDOWN UP TO BOIL

Houghton Acitrol 3129 maintains its effectiveness over the full temperature range—resists breakdown even in pickling installations run at long periods over 200° F. This means you can benefit through the increased production rates Acitrol makes possible. And low temperature baths may be maintained effectively even if less inhibitor is used.

USED ACROSS-THE-BOARD

This fast-dissolving liquid works well in either sulphuric, hydrochloric or phosphoric acid baths. Whether the acid dilution is mild or strong, Acitrol 3129 does the job. It requires no pre-mixing. Picklers find it convenient to use.



STAYS STABLE IN STORAGE

Add Acitrol 3129 to concentrated acid, hold it in storage, and you'll find it ready for effective protection when you want to use it. It remains stable. It stays uniform from batch to batch.

YOU BENEFIT COST-WISE, TOO

Acitrol's stability, efficiency and ability to conserve steel and acids are all indications of its low cost per ton of steel pickled. Houghton Acitrol 3129 is available in 15, 30, and 55 gallon drums and well worth a trial. Get prices and further information from your Houghton Man or write E. F. Houghton & Co., 303 W. Lehigh Ave. Philadelphia 33, Pa.

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BULLETIN

Houghton
Acitrol
3129

ACITROL 3129 product of



Ready to give you
on-the-job service . . .

Mechanics of Materials

ADVANCED MECHANICS OF MATERIALS by Fred B. Seely and James O. Smith, cloth, 680 pages, 5½ x 9 inches; published by John Wiley & Sons Inc., New York, for \$8.50; available from STEEL, Penton Bldg., Cleveland 13, O.

While prepared primarily for advanced undergraduate and first-year graduate students in engineering, the needs of design and research engineers were kept in mind when selecting the topics and methods of presentation. Methods of analysis are given careful attention throughout the book and equal emphasis is given to the engineering evaluation and interpretation of the analyses as influenced by the assumptions made and principles used.

This second edition consists of six parts, two new parts having been added: The Influence of Small Inelastic Strains on the Load-Carrying Capacity of Members and Introduction to Instability—Buckling Loads. The other parts are: Preliminary Considerations; Special Topics on the Strength and Stiffness of Members Subjected to Static Load; Localized Stress—Stress Concentration; Energy Methods.

Precision Inspection Manual

MECHANICAL INSPECTION, by W. H. Armstrong; cloth, 361 pages, 6 x 9 inches; published by McGraw-Hill Book Co. Inc., New York, for \$5.50; available from STEEL, Penton Bldg., Cleveland 13, O.

Intended primarily for use in class work of technical institutes, vocational industrial schools or industrial training programs, this manual is sufficiently detailed for self-instruction. Major emphasis is on the description of tools that are used for dimensional inspection of machine shop products. Instruction is given on the use and care of these tools. Also included is information on blueprint reading and the mathematics of inspection.

Manual discusses hardness testing, magnaflux and radiographic inspection and statistical quality control. References to handbook tables, standard data, operator's instructions and other related material are placed throughout the well-illustrated book.

Investment Casting Process

INVESTMENT CASTINGS FOR ENGINEERS, by Rawson L. Wood and David Lee Von Ludwig; cloth, 477 pages, 6 x 9 inches; published by Reinhold Publishing Corp., New York, for \$10; available from STEEL, Penton Bldg., Cleveland 13, O.

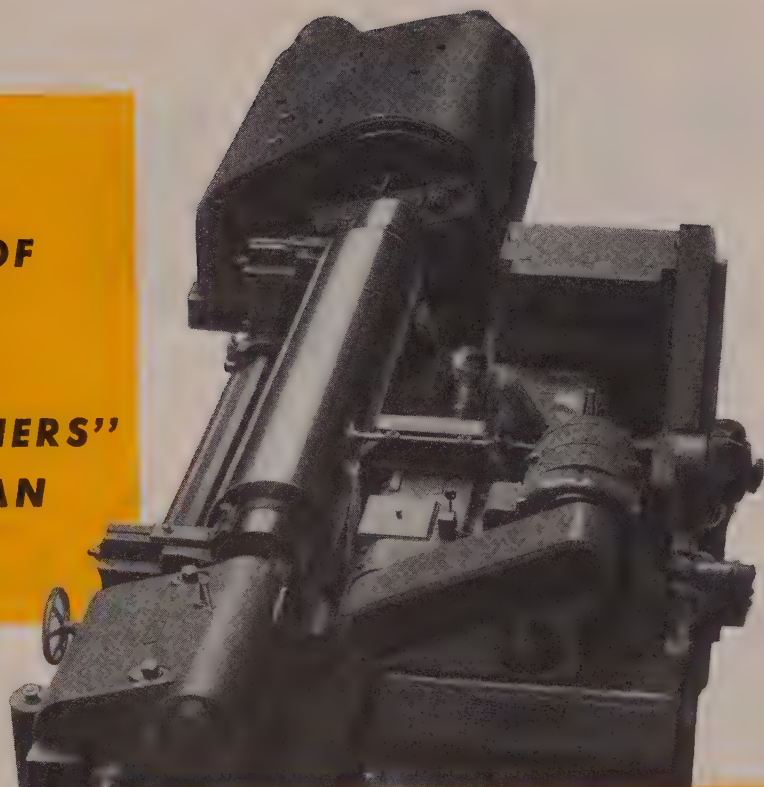
This book defines what actually may be accomplished by means of various commercially important modifications of "lost wax" founding

4

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"SILENT PARTNERS" OF THIS MAN



1 Pressure switches in the lubricating systems for the grinding wheel spindle and carriage ways are interlocked with the motors driving the spindle and carriage traverse, so that these units will operate only after proper oil pressure has been reached, and will stop if pressure fails.

2 Carriage traverse is reversed electrically, automatically, without mechanical reversing clutches, and the dwell at the end of each pass can be set for any elapsed time desired. Once set, no further attention is required.

3 The crowning and concaving device produces a perfectly graduated, mathematically accurate curve. Quickly and easily set, it requires no manipulation during operation. The same setting produces exactly the same curvature in any number of rolls.

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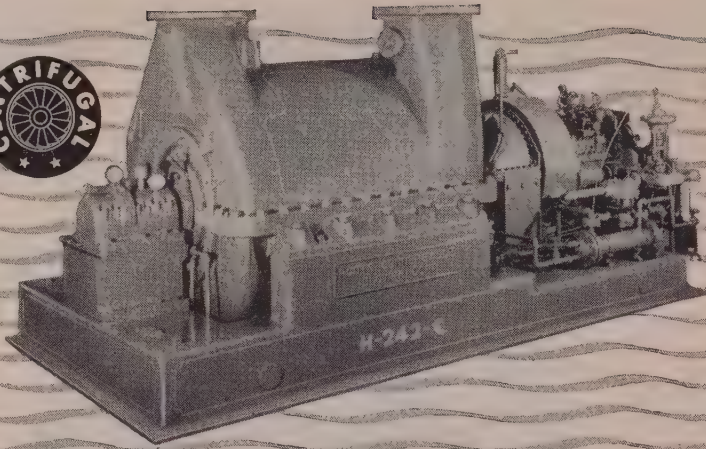
Send for further information about Farrel roll grinders. They are available in two types — type HD shown here, and type TT with traveling work table. Bulletins giving complete specifications of either type will be sent promptly on request.

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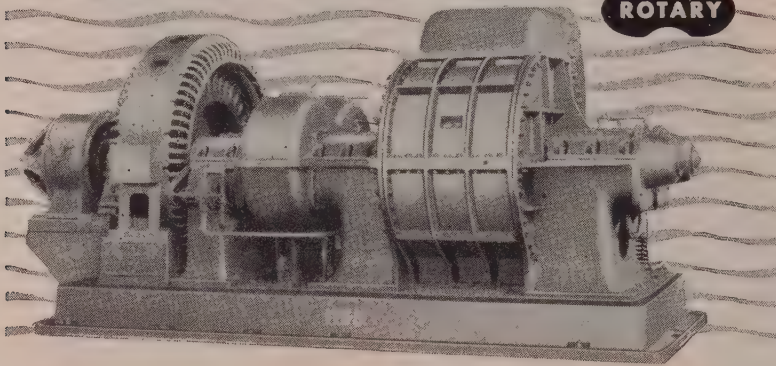
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*Exclusive
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which are currently in use. It gives a comprehensive description of the salient features, advantages and limitations of investment castings. Design engineering factors that determine the attainable precision of cast dimension, cleanliness and uniformity of metallurgical structure are emphasized. Present design and metallurgical limits and degrees of cast tolerance control obtainable are defined. All metallurgical data are derived from actual test results of investment cast specimens and various interrelationships between wax, plastic and mercury processes are fully outlined.

Mechanics of the frozen mercury method, which have never been published, are described in detail.

Survey of Engineering Methods

ENGINEERING MANUFACTURING METHODS, by Gilbert S. Schaller; cloth, 613 pages, 6 x 9 inches; published by McGraw-Hill Book Co., New York, for \$7.00; available from STEEL, Penton Bldg., Cleveland 13, O.

Here manufacturing methods are integrated into the engineering educational program through the use and correlation of engineering design, material and production standards and codes in discussions. A discussion is included of the economic aspects of engineering manufacture, showing the importance of modern manufacturing thinking where costs predominate, and the availability of alternate methods in solutions of given problems.

Founding, machining, welding, hot and cold shaping, thermal treatment and engineering materials and latest technological developments are discussed. Also included are light metals, plastics and copper base alloys. Special treatment is given to automatic lathes, chucking and screwing machines. Developments from Switzerland, France, England and Scotland are covered in the machining section.

ASTM Standards

1952 BOOKS OF ASTM STANDARDS; cloth, 6 x 9 inches; published by American Society for Testing Materials, Philadelphia.

These books contain the formally adopted ASTM standards and tentative specifications, methods of test and definitions. The triennial publications, these are 1952 editions, also have the supplements issued in the intervening years.

The standards are issued in seven books. Part 1 covers ferrous metals; Part 2, Nonferrous metals; Part 3, cementitious materials, refractories,

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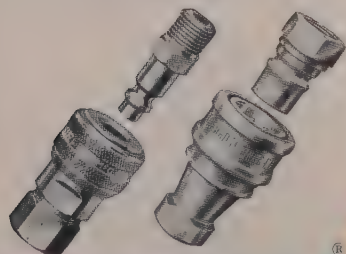


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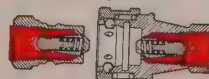
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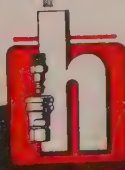


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glass, ceramics, thermal insulation, concrete, mortar, stone, building units, road materials, waterproofing, roofing, soils. Part 4 deals with paint, naval stores, wood, structural sandwiche constructions, building constructions, fire tests; Part 5, petroleum products, fuels, industrial aromatic hydrocarbons, engine antifreezes. Part 6, rubber, plastics, electrical insulation; Part 7, textiles, soap, water paper, shipping containers, adhesives.

Mechanics of Materials Theory

MECHANICS OF MATERIALS, by Seiber Fairman and Chester S. Cutshall; cloth, 420 pages, 9 1/4 x 6 inches; published by John Wiley & Sons Inc., New York for \$5.75; available from STEEL, Penton Bldg., Cleveland 13, O.

The theory behind the mechanics of materials is explained thoroughly, simply and clearly. Written for the average student, it offers a sound understanding of the elements and thorough training in the use of basic principles. Advanced topics are omitted.

Material covered includes: Stress and strain; mechanical properties of materials; riveted and welded joints, thin cylinders and spheres under internal pressure; torsion; shear and moment in beams; stresses in beams; bending combined with direct tension or compression; deflection of beams, double-integration method and area-moment method; statically indeterminate beams; special topics in beams; columns; combined stresses; strain energy and impact.

ASTM Manual

MANUAL ON INDUSTRIAL WATER, 1953; cloth, 344 pages, 6 x 9 inches; published by American Society for Testing Materials, Philadelphia, for \$4.25; available from STEEL, Penton Bldg., Cleveland 13, O.

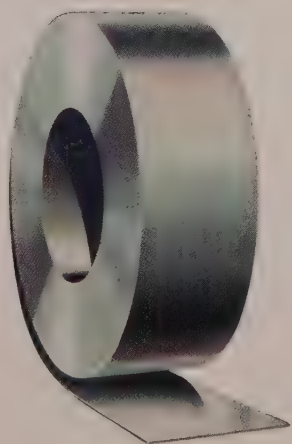
Included in this manual is a critical discussion of important problems in the field of industrial water, along with the various standard definitions, sampling methods and analytical methods that have been standardized by the society through the work of its Committee D-19.

It is intended as a reference source of information for three types of users: Executives and plant designers; individuals engaged in industrial operations involving the use of water; and analysts, operators of special instruments, engineers, and consultants. It provides basic information for routine use and gives direction into the technical literature, thus serving as a point of departure for more specific and detailed studies. It will be particularly helpful to users of ASTM methods of test for industrial water.



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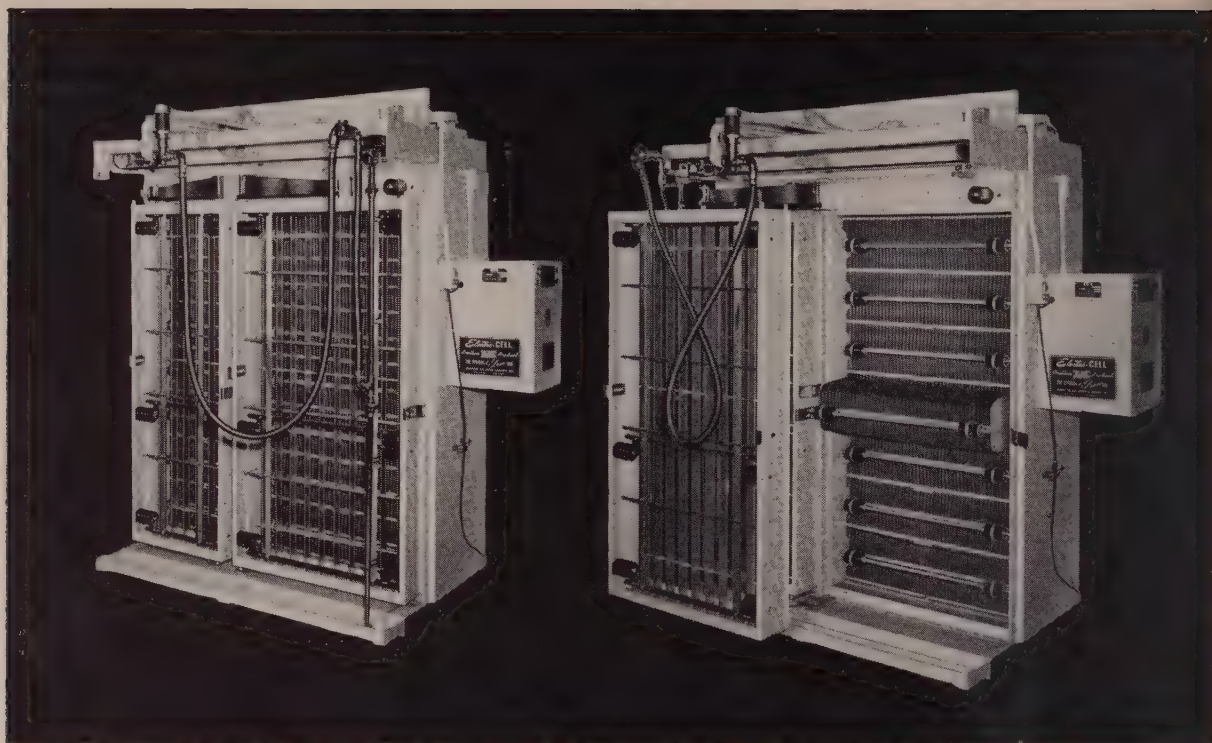


The stainless steel windshield wiper on your car does a sparkling job when the going is wet . . . stays bright and rustless over years of exposure to the worst of weather . . . and is very likely to be made of SUPERIOR Stainless Strip Steel. As original equipment on a variety of cars, and sold by thousands of service stations, garages, car dealers and supply stores, windshield wiper arms and blades of Superior Stainless highlight in service the quality of their metal. • Can we help you with *your* projected applications?

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The Type "H" Washer incorporated as an integral part of an ELECTRO-CELL precipitator provides "push button" control of the cleaning operation. The washer travels on an overhead trackway which keeps it operating freely. The vertical header carrying the spray nozzle is rotated at each end of the travel to provide the necessary 5 degree lead to assure thorough cleaning of the plates. RIGHT: Shows how the hinged ionizers can be opened freely to permit removal or inspection of the plate cells.

ANNOUNCING THE **NEW** ELECTRO-CELL TYPE "H" WASHER with push button control

Here's another *first* from the engineering department of American Air Filter Company. The new Type "H" Washer on the famous ELECTRO-CELL precipitator is a major contribution to the field of electronic air cleaning equipment—another important reason for AAF leadership!

Fully automatic, the spray head moves back and forth across the face of the removable plate cells. Accumulated dirt and dust is washed away—maintaining the high cleaning efficiency of the ELECTRO-CELL . . . which provides super clean air for many critical industrial and commercial uses.

The new Type "H" Washer has many advantages including its nominal cost. It in no way interferes with the opening of the hinged Ionizers or removing the plate cells.

Another exclusive feature of the new Type "H" Washer is the positioning of the spray-heads. These are automatically adjusted to always point at a 5 degree angle in the direction the spray-heads are travelling. This insures thorough washing action over the entire depth and each side of each individual plate.

The water used by the sprayer is controlled by a solenoid valve connected

with the spray-head motor drive and is synchronized with the travelling spray-heads.

The ELECTRO-CELL, long famous in the field of electronic air cleaning, removes dust, dirt and even smoke from the air. With the addition of the Type "H" Washer it is even more efficient and practical to operate . . . and maintenance is reduced to a minimum!

Write the American Air Filter Company for technical data and descriptive information on this latest AAF achievement. AAF experience will help you solve all of your air cleaning problems.

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American Air Filter
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July 6, 1953

Market Outlook

THE NEXT few weeks will reveal how strong steel demand will be in the fourth quarter. The answer will be awaited by many people: Users want to know how difficult it will be to procure steel. Producers want to know what kind of business they'll have.

BUSY THIRD QUARTER—The third quarter is already shaped. It'll be a period of high steel operations, unless cancellations develop.

Early this year there were predictions that steel demand would decline sufficiently to cut steel production in the third quarter. As the year progressed, the date of decline was moved to the fourth quarter. Now, everyone wants to know what is in store for the last quarter.

CONTRASTS—Currently, you can find contrasts in the market. One steel executive described it as a state of "fluidity." He pointed to some steel order cancellations; then he showed where those cancellations were offset by consumers' requests for additional tonnage for third quarter. At that point his telephone brought an inquiry for conversion of slabs to cold-rolled sheets.

NO CAUSE FOR WORRY—Order cancellations received thus far do not indicate any pattern. Some of them may stem from changes in the defense program and the change in steel price extras. Some steel users have attempted to revise their specifications to avoid some of the price increases.

As long as conversion steel is a live topic the over-all demand for steel is strong. Conversion tonnage is more costly than regular output of mills. You consider conversion steel only when you think you may need more steel

than you can get at regular mill prices. Although there's interest in conversion steel for fourth quarter, buyers are reluctant yet to make definite commitments for it.

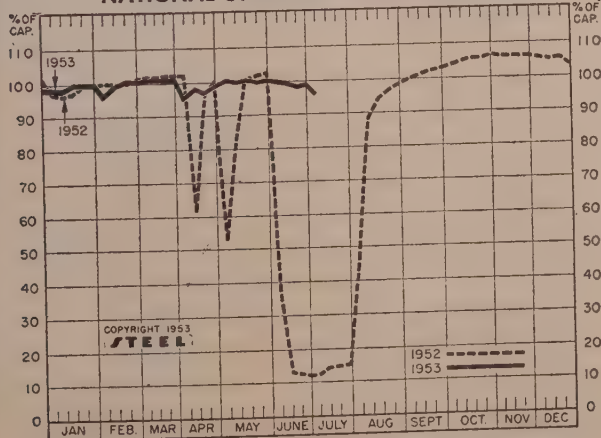
FOURTH-QUARTER OUTLOOK—At the moment, the majority of observers are inclined to believe the present strong demand will continue through the fourth quarter. The automobile industry, the largest single consumer of steel, is still exuding optimism over the auto business for the rest of the year. Because it is such a big consumer everybody is watching it for a cue as to continued strength in steel demand. In the appliance industry, where there has been a business lull, there are signs of a pickup. Even during the lull the appliance makers did not quit taking steel. They didn't want to lose their places on order books. A business pickup there would preclude any decline in steel orders from this sector.

VACATION TIME—Presently, steel consumption is dropping off slightly because of summer vacations but the supply will decline some too for the same reason.

Effect of summer vacations appears in the rate of steel production during the week ended July 4. Output of steel for ingots and castings dropped 3 points from the preceding week to 96 per cent of capacity. This is the lowest level since the steel strike of last year.

PRICE RISES SPREAD—Price increases continue to emerge from the iron and steel industry—even on products like pig iron and fasteners, where demand has shrunk. Pig iron went up \$1.50 a gross ton, and one company raised industrial fasteners 10 per cent.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

(Percentage of capacity engaged at leading production points)

	Week Ended July 4	Change	Same 1952	Week 1951
Pittsburgh	98	- 1.5*	5	95.5
Chicago	102.5	- 0.5*	7	106.5
Mid-Atlantic	96.5	- 1.5	17	99
Youngstown	93	-12	0	105
Wheeling	99	- 1	50	93.5
Cleveland	96	- 2.5*	0	100.5
Buffalo	106.5	0	0	104
Birmingham	99.5	- 1.5	0.5	100
New England	83	- 2	20	91
Cincinnati	99	- 5	32	106
St. Louis	107.5	+ 8.5	31	84.5
Detroit	105	0	49	101
Western	107	0	33	103.5
Estimated National Rate	98	- 3	12.5	101

*Change from preceding week's revised rate. Weekly steelmaking capacity is estimated at 2,254,459 net tons in 1953; 2,077,040 tons in 1952; 1,999,034 tons in 1951.

Composite Market Averages

FINISHED STEEL PRICE INDEX:	June 30	June 23	Month	June
Bureau of Labor Statistics	1953	1953	ago	average
(1947-1949=100)	141.8	141.7	136.6	136.6

AVERAGE PRICES (BUREAU OF LABOR STATISTICS)
Week Ended June 30, 1953

Units are 100 lb except where otherwise noted. For complete description of products see insert following p. 28, STEEL, Sept. 8, 1952.

Rails	\$4.325	Sheets, C.R., carbon	\$5.825
Track spikes	7.05	Sheets, galv.	6.965
Track bolts	10.175	Strip, C.R., carbon	5.450
Tie plates	5.125	Strip, C.R., stainless (lb)	0.348
Joint bars	5.275	Pipe, black, buttweild (100 ft)	7.773
Plates, carbon	4.488	Pipe, galv., buttweild (100 ft)	9.439
Structural shapes	4.650	Boiler tubes (100 ft)	37.020
Bars, tool steel (lb)	1.66	Tin plate (100 lb base box)	8.950
Bars, 3120 alloy	7.225	Terne plate (100 lb base box)	7.750
Bars, stainless (lb)	0.160	Wire, carbon, merchant	6.692
Bars, carbon	4.600	Wire, fence, galv.	7.317
Bars, reinforcing	4.450	Nails (100 lb kegs)	7.630
Bars, CR, carbon	6.550	Wire, barbed (80 rod spool)	6.360
Sheets, H.R., carbon	4.525	Woven wire fence (20 rod roll)	14.271

FINISHED PRICE INDEX, Weighted:
Calculated by STEEL*

	July 2	Week	Month	Year	5 Yrs.
	ago	ago	ago	ago	ago
Index (1935-39 av.=100)	189.13	187.73	182.82	171.92	134.56
Index in cents per lb.	5.125	5.086	4.953	4.657	3.645

ARITHMETICAL PRICE COMPOSITES:
Calculated by STEEL*

Finished Steel NT	\$114.53†	\$113.44†	\$111.28	\$106.32	\$80.27
No. 2 Fdry, Pig Iron, GT	56.54	55.04	55.04	52.54	40.96
Basic Pig Iron, GT	56.00	54.66	54.66	52.16	40.49
Malleable Pig Iron, GT	57.27	55.77	55.77	53.27	41.54
Steelmaking Scrap, GT	43.17	40.50	39.50	42.33	40.67

* For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130.
† Preliminary.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS	July 2	Week	Month	Year	5 Yrs.
	ago	ago	ago	ago	ago
Bars, H.R., Pittsburgh	4.15	4.15	3.95	3.70	2.875
Bars, H.R., Chicago	4.15	4.15	3.95	3.70	2.875
Bars, H.R., del. Philadelphia	5.302	5.302	4.502	4.252	3.365
Bars, C.F., Pittsburgh	5.20	5.20	4.925	4.55	3.60
Shapes, Std., Pittsburgh	4.10	4.10	3.85	3.65	2.775
Shapes, Std., Chicago	4.10	4.10	3.85	3.65	2.775
Shapes, del. Philadelphia	4.38	4.38	4.13	3.93	2.98
Plates, Pittsburgh	4.10	4.10	3.90	3.70	2.925
Plates, Chicago	4.10	4.10	3.90	3.70	2.925
Plates, Coatesville, Pa.	4.35	4.35	4.35	4.15	3.45
Plates, Sparrows Point, Md.	4.10	4.10	3.90	3.70	2.95
Plates, Claymont, Del.	4.65	4.35	4.35	4.15	3.65
Sheets, H.R., Pittsburgh	3.925	3.925	3.775	3.60-75	2.775
Sheets, H.R., Chicago	3.925	3.925	3.775	3.60	2.775
Sheets, C.R., Pittsburgh	4.775	4.775	4.675	4.35	3.50
Sheets, C.R., Chicago	4.775	4.775	4.675	4.35	3.50
Sheets, C.R., Detroit	4.775	4.775	4.775	4.55	3.70
Sheets, Galv., Pittsburgh	5.275	5.275	5.075	4.80	3.90
Strip, H.R., Pittsburgh	3.975-4.25	3.975-4.225	3.975-4.225	3.75-4.00	3.05
Strip, H.R., Chicago	3.925	3.925	3.725	3.50	2.775
Strip, C.R., Pittsburgh	5.45-5.95	5.10-5.80	5.10-5.80	4.65-5.35	3.775
Strip, C.R., Chicago	5.70	5.70	5.35	4.90	3.60
Strip, C.R., Detroit	5.45-6.05	5.30-6.05	5.30-6.05	4.85-5.60	3.71
Wire, Basic, Pitts.	5.475-5.525	5.475-5.525	5.475-5.525	4.85-5.10	3.725
Nails, Wire, Pittsburgh	6.35-6.55	6.35-6.55	6.35	5.90-6.20	5.125
Tin plate, box, Pittsburgh	\$8.95	\$8.95	\$8.95	\$8.70	\$6.60

SEMI-FINISHED

Billets, forging, Pitts. (NT)	\$75.50	\$75.50	\$70.50	\$66.00	\$54.00
Wire rods, $\frac{3}{8}$ -%, Pitts.	4.525	4.525	4.425	4.10-30	3.175

PIG IRON, Gross Ton

Bessemer, Pitts.	\$57.00	\$55.50	\$55.50	\$53.00	\$43.00
Basic, Valley	56.00	54.50	54.50	52.00	39.00
Basic, del. Phila.	60.75	59.25	59.25	56.75	42.17
No. 2 Fdry, Pitts.	56.50	55.00	55.00	52.50	42.50
No. 2 Fdry, Chicago	56.50	55.00	55.00	52.50	39.00
No. 2 Fdry, Valley	56.50	55.00	55.00	52.50	39.00
No. 2 Fdry, del. Phila.	61.25	59.75	59.75	57.25	42.67
No. 2 Fdry, Birm.	52.88	51.38	51.38	48.88	39.33
No. 2 Fdry (Birm.) del. Cin	60.43	58.93	58.93	56.43	45.09
Malleable, Valley	56.50	55.00	55.00	52.50	39.50
Malleable, Chicago	56.50	55.00	55.00	52.50	39.50
Ferromanganese, Etms, Pa.	200.00†	200.00†	200.00†	188.00†	151.00*

* F.O.b. cars, Pittsburgh; 78-82% Mn, per gross ton. † 74-76% Mn, per net ton. ‡ 78-82% Mn, per gross ton.

SCRAP, Gross Ton (Including broker's commission)

No. 1 Heavy Melt, Pitts.	\$44.50	\$42.50	\$39.50	\$44.00	\$40.25
No. 1 Heavy Melt, E. Pa.	43.50	41.50	41.50	40.50	42.50
No. 1 Heavy Melt, Chicago	41.50	37.50	37.50	42.50	39.25
No. 1 Heavy Melt, Valley	45.50	42.50	41.50	44.00	40.25
No. 1 Heavy Melt, Cleve.	43.50	40.50	39.00	43.00	39.75
No. 1 Heavy Melt, Buffalo	40.75	40.75	40.75	37.00	44.00
Rails, Re-rolling, Chicago	50.00	49.00	47.50	52.50	54.50
No. 1 Cast, Chicago	40.00	39.00	38.00	45.00	68.50

† F.O.b. shipping point.

COKE, Net Ton

Beehive, Furn, Connsvl.	\$14.75	\$14.75	\$14.75	\$14.75	\$13.00
Beehive, Fdry, Connsvl.	17.00	17.00	17.00	17.50	15.50
Oven Fdry, Chicago	24.50	24.50	24.50	23.00	19.50

PIG IRON

F.O.b. furnace prices as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies on pages 180-181.

PIG IRON, Gross Ton

	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa. B2	\$58.00	\$58.50	\$59.00	\$59.50
New York, del.		62.28	62.78	
Newark, del.	61.02	61.52	62.02	62.52
Philadelphia, del.	60.75	61.25	61.75	62.25
Birmingham District				
Alabama City, Ala. R2	52.38	52.88		
Birmingham R2	52.38	52.88		
Birmingham S9		52.88		
Woodward, Ala. W15	52.38	52.88		
Cincinnati, del.		60.43		
Buffalo District				
Buffalo R2	56.00	56.50	57.00	
Buffalo H1	56.00	56.50	57.00	
Tonawanda, N.Y. W12	56.00	56.50	57.00	
No. Tonawanda, N.Y. T9		56.50	57.00	
Boston, del.	66.65	67.15	67.65	
Rochester, N.Y., del.	59.02	59.52	60.02	
Syracuse, N.Y., del.	60.12	60.62	61.12	
Chicago District				
Chicago I-3	56.00	56.50	56.50	57.00
Gary, Ind. U5	56.00		56.50	
Indiana Harbor, Ind. I-2	56.00		56.50	
So. Chicago, Ill. W14	56.00	56.50	56.50	
So. Chicago, Ill. Y1	56.00	56.50	56.50	
So. Chicago, Ill. U5	56.00		56.50	57.00
Milwaukee, del.	58.17	58.67	58.67	59.17
Muskegon, Mich., del.		62.80	62.80	
Cleveland District				
Cleveland A7	56.00	56.50	56.50	57.00
Cleveland R2	56.00	56.50	56.50	
Akron, O., del. from Cleve.	58.61	59.11	59.11	59.61
Lorain, O. N3	56.00			57.00
Duluth I-3			56.50	
Erie, Pa. I-3	56.00	56.50	56.50	57.00
Everett, Mass. E1		63.25	63.75	
Fontana, Calif. K1	60.50	61.00		
Geneva, Utah C11	56.00	56.50		
Granite City, Ill. G4	57.90	58.40	58.90	
St. Louis, del. (inc. tax)	59.40	59.90	60.40	
Ironport, Utah C11	56.00	56.50		
Lone Star, Texas L6	52.00	52.50*	52.50	
Minnequa, Colo. C10	58.50	57.50	57.50	
Rockwood, Tenn. C3			58.50	
Pittsburgh District				
Nevelleland, Pa. P6	56.00	56.50	56.50	
Pitts. N. 3S. sides, Ambridge				
Aliquippa, del.	57.37	57.87	57.87	
McKees Rocks, del.	57.04	57.54	57.54	
Lawrenceville, Homestead				
Wilmerding, Monaca, del.	57.66	58.16	58.16	
Verona, Trafford, del.	58.19	58.69	58.69	
Brackenridge, del.	58.45	58.95	58.95	
Bessemer, Pa. U5	56.00		56.50	57.00
Clairton, Kan., Duquesne, Pa. U5	56.00			
McKeesport, Pa. N3	56.00			57.00
Midland, Pa. C18	56.00			
Monessen, Pa. P7	54.50			
Sharpville, Pa. S6	56.00	56.50	56.50	57.00
Steelton, Pa. B2	58.00	58.50	59.00	59.50
Swedeland, Pa. A3	60.00	60.50	61.00	61.50
Toledo, O. I-3	56.00	56.50	56.50	57.00
Cincinnati, del.	61.47	61.97		
Troy, N.Y. R2	58.00	58.50	59.00	
Youngstown District				
Hubbard, O. Y1	56.00	56.50	56.50	
Youngstown Y1	56.00	56.50	56.50	
Youngstown U5	56.00			57.00
Mansfield, O., del.	60.65	61.15	61.15	61.65

* Low phos, southern grade

PIG IRON DIFFERENTIALS

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos iron on which base is 1.75-2.00%.

Phosphorus: Deduct 38 cents per ton for P content of 0.70% and over.

Manganese: Add 50 cents per ton for each 0.50% manganese over 1% or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add \$2 per ton and each additional 0.25%, add \$1 per ton.

BLAST FURNACE SILVER PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add \$1.50 for each 0.5% Si; 75 cents for each 0.5% Mn over 1%)

Jackson, O. G2, J1	\$67.00
Buffalo H1	68.25

ELECTRIC FURNACE SILVER PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1 for each 0.5% Mn over 1%; \$2 per gross ton premium for 0.045% max P)

Niagara Falls, N.Y. P15	\$91.00
Keokuk, Iowa, Openheart & Fdry, freight allowed K2	92.50
Keokuk, OH & Fdry, 12% lb piglets, 18% Si, frt. allowed K2	95.50
Wenatchee, Wash., OH & Fdry, freight allowed K2	92.50

LOW PHOSPHORUS PIG IRON, Gross Ton

Cleveland, intermediate, A7	\$61.00
Rockwood, Tenn. T3	68.50
Steelton, Pa. B2	64.00
Philadelphia, delivered	67.55
Troy, N.Y. R2	64.00

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 29.75-30.00c, Conn. Valley; Lake 30.125c; foreign electrolytic, del.

Brass: Ingots: 35-5-5-5 (No. 115) 26.00c; 8-10-2 (No. 215) 34.75c; 80-10-10 (No. 305) 0.00c; No. 1 yellow (No. 405) 21.25c.

Zinc: Prime western 11.00c; brass special 1.25c; intermediate 11.50c; East St. Louis; high grade 12.35c, and special high grade 12.50c delivered.

Lead: Common 13.30c; chemical 13.40c; corroding 13.40c; St. Louis.

Primary Aluminum: 99% plus, ingots 20.50c, pigs 19.50c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.

Secondary Aluminum: Piston alloys 23.00-23.75; No. 12 foundry alloy (No. 2 grade) 22.50-23.25; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 23.75-24.50; grade 2 23.00-23.75; grade 3, 22.00-22.50; grade 4, 21.00-21.50.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over 27.00c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt RFC, 121.50c; outside market 89.50.

Antimony: American 99-99.8% and over but not meeting specifications below 34.50c; 99.8% and over (arsenic 0.05% max., other impurities 0.1% max.) 35.00c; f.o.b. Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 60.00c; 25-lb pigs 62.65c; "XX" nickel shot, 63.65c; "P" nickel shot or ingots, for addition to cast iron, 60.00c. Prices include import duty.

Mercury: Open market, spot, New York, \$189-\$193, per 76-lb flask.

Cadmium: "Regular" straight or flat forms, \$2 del.; special or patented shapes \$2.15.

Beryllium-Copper: 2.75-4.25% Be, \$40.00 per lb of contained beryllium, with balance as copper at market price on date of shipment, f.o.b. Reading, Pa. or Elmore, O.

Cobalt: 97.99%, \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (case); \$2.47 per lb under 100 lb.

Gold: U. S. Treasury, \$35 per ounce.

Silver: Open-market, New York \$35.25c per oz.

Platinum: \$90-\$95 per ounce from refineries.

Palladium: \$23-\$24 per troy ounce.

Iridium: \$165-\$175 per troy ounce.

Titanium: (sponge form): \$5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Cents per pound, f.o.b. mill, effective Apr. 1, 1953. Listings are lowest quotations.)

Sheet: Copper 50.48; yellow brass 42.87; commercial bronze, 95% 49.89; 90% 48.76; red brass, 85% 47.11; 80% 45.99; best quality, 44.45; nickel silver, 18%, 59.84; phosphor-bronze grade A, 5%, 70.50.

Rod: Copper, hot-rolled 46.83; cold-drawn 48.08; yellow brass free cutting, 36.68; commercial bronze 95% 49.58; 90% 48.45; red brass 85%, 46.80; 80%, 45.68.

Seamless Tubing: Copper 50.42; yellow brass 45.78; commercial bronze, 90%, 51.32; red brass, 85%, 49.02.

Wire: Yellow brass 43.16; commercial bronze, 95%, 50.18; 90%, 49.05; red brass, 85%, 47.40; 80%, 46.28; best quality brass, 44.72.

(Base prices effective Apr. 1, 1953)

Copper Wire: Bare, soft, f.o.b. eastern mills, 100,000 lb lots, 37.46; 30,000 lb lots, 37.58; l.c.l. 38.08. Weatherproof, 100,000 lb, 37.85; 30,000 lb, 38.10; l.c.l., 38.60. Magnet wire del., 15,000 lb or more 43.93; l.c.l., 44.68.

ALUMINUM
(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders. Effective Jan. 22, 1953.)
Sheets and Circles: 2s and 3s mill finish c.l.

Thickness Range	Widths or Inches	Flat Diameters, In.	Sheet Base	Sheet Circlet Base
0.249-0.136	12-48	32.9	...	...
0.135-0.096	12-48	33.4	...	...
0.095-0.077	12-48	34.1	31.8	36.3
0.076-0.061	12-48	34.7	32.0	36.5
0.060-0.048	12-48	35.0	32.2	36.8
0.047-0.038	12-48	35.5	32.6	37.1
0.037-0.030	12-48	35.9	33.0	37.8
0.029-0.024	12-48	36.5	33.4	38.0
0.023-0.018	12-36	37.1	34.0	39.0
0.018-0.017	12-36	37.9	34.6	39.9
0.016-0.015	12-36	38.8	35.4	41.1
0.014	12-24	39.8	36.4	42.4
0.013-0.012	12-24	40.9	37.1	43.4
0.011	12-24	41.9	38.3	45.0
0.010-0.0095	12-24	43.1	39.4	46.6
0.009-0.0085	12-24	44.3	40.7	48.5
0.008-0.0075	12-24	45.8	41.9	50.3
0.007	12-18	47.3	43.4	52.6
0.006	12-18	48.9	44.8	57.6

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

Screw Machine Stock: 5000 lb and over.

Screw Machine Stock: 5000 lb and over.

Dia. (in.)	—Round—	—Hexagonal—
or distance		
across flats	11S-T3 17S-T4	11S-T3 17S-T4

Drawn	...	...	...	...
0.125	58.4	56.8	...	...
0.156-0.172	49.7	48.0	...	...
0.188	49.7	48.0	...	61.2
0.219-0.234	47.0	45.3	...	...
0.250-0.281	47.0	45.3	...	58.4
0.313	47.0	45.3	...	55.7

Cold-finished	...	...	...	...
0.375-0.531	45.3	43.7	55.1	52.4
0.563-0.688	45.3	43.7	52.4	49.2
0.750-1.000	44.2	42.6	48.0	46.4
1.063	44.2	42.6	...	44.8
1.125-1.500	42.6	41.0	46.4	44.8

Rolled	...	...	...	...
1.563	42.0	40.5	...	...
1.625-2.000	41.5	39.8	...	43.2
2.125-2.500	40.5	38.8	...	...
2.750-3.375	39.3	37.6	...	...

LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$18.50 per cwt; add 50c cwt 100 sq ft to 140 sq ft. Pipe: Full coils \$18.50 per cwt. Traps and bends: List prices plus 30%.

ZINC

Sheets 23.00c, f.o.b. mill 36.000 lb and over. Ribbon zinc in coils, 18.50-20.50c, f.o.b. mill, 36.000 lb and over. Plates, not over 12-in., 20.75-21.75c; over 12-in., 20.75-21.75c.

"A" NICKEL

(Base prices f.o.b. mill effective Mar. 9, 1953) Sheets, cold-rolled 86.50c. Strip, cold-rolled 92.50c. Rods and shapes, 82.50c. Plates, 84.50c. Seamless tubes 115.50c.

(Base prices f.o.b. mill effective Mar. 9, 1953) Sheets, cold-rolled 67.50c. Strip, cold-rolled 75.50c. Rods and shapes, 65.50c. Plates 66.50c. Seamless tubes, 100.50c. Shot and blocks, 60.00c.

MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in diameter, less than 25 lb 58.00c-65.00c; 25 to 99 lb, 48.00c-55.00c; 100 lb to 5000 lb, 44.00c.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, \$15; sheared mill plate, \$12; strip, \$15; wire, \$10; forgings, \$6; hot-rolled and forged bars, \$6.

Plating Materials

Chromic Acid: 99.9% flakes, f.o.b. Philadelphia, carloads 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

Copper Anodes: Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed: Flat, rolled, 42.18c; oval 41.68c.

Nickel Anodes: Rolled, oval, carbonized, carloads 81.00c; 5000 to 29,999 lb, 83.00c; 500 to 4999 lb, 85.00c; 1 to 499 lb, 89.00c, f.o.b. Cleveland.

Nickel Chloride: In 100 lb bags; 10,000 lb and over, 37.00c; 5000 to 9900 lb, 38.00c; 400 to 4900 lb, 40.00c; 300 lb, 42.00c; 200 lb, 43.00c; 100 lb, 45.00c, f.o.b. Cleveland.

Sodium Stannate: 25 lb cans only, less than 100 lb to consumers 71c per lb; 100 to 350 lb drums only, 100 to 600 lb 56.7c; 700 to 1900 lb, 54.3c 2000 to 9900 lb, 52.5c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers. Based on 93-cent tin.

Tin Anodes: Bar, 1000 lb and over, \$1.09; 500 to 999 lb, \$1.05; 200 to 499 lb, \$1.10; less than 200 lb, \$1.15. Freight allowed east of Mississippi and north of Ohio and Potomac. Based on 93-cent tin.

Stannous Sulphate: 100 lb kegs or 400 lb bbl, less than 2000 lb 94.9c; more than 2000 lb, 92.9c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers. Based on 93-cent tin.

Stannous Chloride (Anhydrous): In 400 lb bbl, \$1.05; 100 lb kegs \$1.08, f.o.b. Carteret, N.J., freight allowed on 100 lb or more. Based on 93-cent tin.

Zinc Cyanide: 100 lb drums, less than 10 drums 54.30c, 10 or more drums, 52.30c, f.o.b. Niagara Falls, N. Y.

Scrap Metals

BRASS MILL ALLOWANCES

(Prices in cents per pound for less than 20,000 pounds, f.o.b. shipping point; on lots over 20,000 pounds at one time of any or all kinds of scrap, add 1 cent per pound.)

	Clean	Rod	Clean
Copper	28.625	28.625	27.875
Yellow Brass	21.375	21.125	19.625
Commercial Bronze	27.250	27.000	26.500
95%	26.125	25.875	25.375
90%	25.125	24.875	24.375
85%	24.125	23.875	23.375
80%	22.500	22.250	21.750
Best Quality (71-80%)	20.000	19.750	19.250
Muntz metal	25.250	25.000	24.250
Nickel silver, 10%	30.625	30.375	29.375
Phos. Bronze, A	20.000	19.750	19.250
Naval Brass	20.000	19.750	19.250
Manganese Bronze	20.000	19.750	19.250

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 23.50 nom.; No. 2 copper 22.00; light copper 20.50; refinery brass (60% copper) per dry copper content 19.50.

INGOT MAKERS' COPPER AND BRASS

SCRAP BUYING PRICES

(Cents per pound, carlots, delivered)

No. 1 copper 23.50 nom.; No. 2 copper, 22.00; light copper 20.50; No. 1 composition borings 17.50-18.00; No. 1 composition solids, 18.00-18.50; radiators 14.00-14.50; heavy yellow brass solids, 14.00-14.50; yellow brass turnings 13.50.

SMELTERS' BUYING PRICES FOR

SCRAP ALUMINUM

(Carlots, delivered)

2S aluminum clippings, 16.00-17.00c; mixed clippings, 15.00-16.00c; old aluminum sheet, 14.00-14.25c; old aluminum cast, 14.00-14.50c; borings and turnings, 14.00-14.50.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Copper and brass: Heavy copper and wire, No. 1 23.00; No. 2 copper 20.00; light copper 18.00; No. 1 composition red brass 17.00. No. 1 composition turnings 16.50; mixed brass turnings 10.00; new brass clippings 17.50; No. 1 brass rod turnings 12.50; light brass 10.00; heavy yellow brass 12.50; new brass rod ends 16.50; auto radiators, unsweated 13.00; cocks and faucets 15.00; brass pipe 16.00.

Aluminum: Clippings 2S 14.00; old sheets 10.00; crankcase 10.00; borings and turnings 7.50; pistons and struts 7.50.

Tin: No. 1 pewter 55.00; block tin pipe 80.00; No. 1 babbitt 45.00.

Lead: Heavy 10.50-11.00; battery plate 6.00-6.25; inotype and stereotype 12.75-13.25; electrolytic 11.00-11.50; mixed babbitt 11.50-12.50.

Zinc: Old zinc, 4.50; new die cast scrap, 4.60; old die cast scrap, 3.50.

Nickel: Sheets and clips \$1.00; rolled anodes \$1.00; turnings 85.00; rod ends \$1.00.

Monel: Clippings 33.00; old sheet 30.00; turnings 25.00; rods 33.00.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
1953								
July 2	29.75-30.00	13.00	11.00	89.50	20.50	34.50	60.00	85.25
July 1	29.75-30.00	13.30	11.00	90.50	20.50	34.50	60.00	85.25
June 29-30	29.75-30.00	13.30	11.00	90.50	20.50	34.50	60.00	85.25
June 26-27	29.75-30.00	13.30	11.00	91.25	20.50	34.50	60.00	85.25
June 25	29.75-30.00	13.30	11.00	91.75	20.50	34.50	60.00	85.25
June 24	29.75-30.00	13.30	11.00	93.00	20.50	34.50	60.00	85.25
June 23	29.75-30.00	13.30	11.00	93.75	20.50	34.50	60.00	85.25
June 22	29.75-30.00	13.30	11.00	93.50	20.50	34.50	60.00	85.25
June 19-20	29.75-30.00	13.30	11.00	92.75	20.50	34.50	60.00	85.25
June 17-18	29.75-30.00	13.30	11.00	92.00	20.50	34.50	60.00	85.25
June 16	29.75-30.00	13.30	11.00	92.50	20.50	34.50	60.00	85.25
June 15	29.75-30.00	13.30	11.00	93.00	20.50	34.50	60.00	85.25
June 12-13	29.75-30.00	13.30	11.00	93.50	20.50	34.50	60.00	85.25
June 11	29.75-30.00	13.30	11.00	93.00	20.50	34.50	60.00	85.25
June 10	29.75-30.00	13.05	11.00	92.50	20.50	34.50	60.00	85.25
June 9	29.75-30.00	13.05	11.00	91.75	20.50	34.50	60.00	85.25
June Avg.	29.875	13.213	11.00	92.918	20.50	34.50	60.00	85.25

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99.9%, del.; Antimony, bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9% base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

Nonferrous Metals

Consumers of nickel and aluminum can look forward to freer supply. Third-quarter world output of nickel to rise 124 tons. Alcoa producing extruded ingot at Vancouver

LARGER tonnages of aluminum and nickel are being made available to the metalworking industry in this country. The latter metal is one of the few raw materials still being allocated by the International Materials Conference, Washington.

The United States, as usual, got the largest share, 25,078 metric tons out of a total of 36,315 for the third quarter. The second-quarter total was 36,675 tons. Britain was awarded the second largest share, 5470.5 tons, followed by West Germany with 1405.1 tons, France with 1135.9 tons, and Canada with 1125.4 tons.

Output Gains—The decline in the availabilities for third-quarter allocation does not arise from a decrease in production, which is estimated at 124 tons more for that period than for the second quarter. It arises from the fact that second-quarter availabilities include greater carry-overs of production from the previous quarters.

All nickel allocated, but not used, will become available automatically to purchasers in the United States and other countries.

New Caledonia fonte (nickel cast iron), the production of which has increased considerably, is excluded from the third-quarter allocation. The committee points out it has not been able to formulate a definite distribution for this material, mainly because it is not entirely interchangeable with refined nickel. Japanese

nickel, available for export, also is excluded from this allocation.

More Aluminum—First production of extruded ingots at Aluminum Co. of America's plant in Vancouver, Wash., has begun. This results from a \$560,000 expansion program; second expansion is to be completed in 1954.

The industry is expanding on the West Coast in other directions as well. H. W. Shoemaker, manager of Reynolds Metals Co.'s plant at Longview, Wash., announces recovery equipment is in operation to produce cryolite. It is designed to reclaim this mineral from plant fumes and carbon linings of the aluminum reduction potlines. This equipment will make the plant self-sufficient so far as this mineral is concerned.

Monel Shot Price Advances

International Nickel Co. Inc., New York, advanced the price of Monel shot and blocks to 60.00c a pound, f.o.b. Bayonne, N. J., effective as of July 1. The company made no change in its price schedules covering other monel products quoted on page 177 of this issue or on "A" nickel products.

Magnesium Plant Lease Signed

Dow Chemical Co., Midland, Mich., and General Services Administration, Washington, signed a lease calling for Dow to continue operating the government-owned magnesium plant at Velasco, Tex. Dow also operates a magnesium plant at Freeport, Tex.

The lease will run through June 30, 1954. It contains a provision for an extension of the agreement which Dow is expected to request.

The plant has a rated capacity of 80 million pounds of the light metal annually. It is the only one of seven government-owned plants still in operation. Six others shut down recently by government order.

The lease calls for Dow to produce and deliver to the government stated quantities of magnesium for stockpiling purposes. Production over the contract amount will remain with



X Marks the Spot

"Most fantastic we've ever seen," say geologists of a nickel find about 50 miles north of Kenora, Ont. F. E. Hall, vice president of Quebec Nickel Corp., which holds the claim, describes the deposit as possibly the largest ever found in Canada.

Dow for distribution through normal marketing channels.

Metal Buying Interest Lags

Trading in nonferrous metals is quiet, reflecting the usual summer letdown. Lack of buying interest in tin has resulted in a drop to around 89.50c for Straits spot and 88.25c for August delivery.

Most of the business in copper is being placed on the basis of 30.00c, sales by custom smelters at 29.75c. Certain fabricating subsidiaries of the larger producers continue to buy substantial tonnage of Chilean copper at 35.50c, f.o.b. Chilean ports. This practice is forestalling a downward price revision in that market.

Allocations and inventory controls have been dropped on cobalt, chromium and molybdenum, eased on columbium and tantalum.

Use of lead is holding at a higher level than had been expected. The battery industry, for example, shipped over 6.6 million replacement units in the first five months against less than 5.5 million in the like 1952 period.

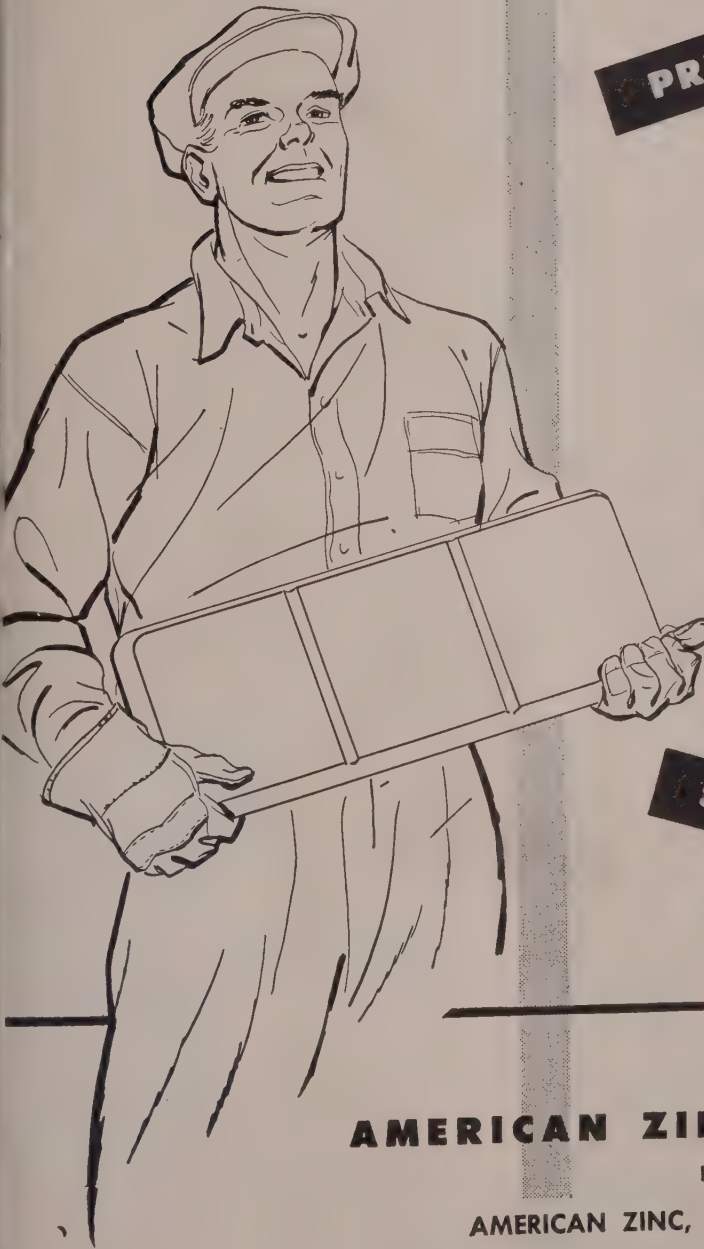
STEEL's Metal Price Averages for June, 1953

(Cents per pound)

Electrolytic Copper, del.	
Conn.	29.875
Lead, St. Louis	13.213
Prime Western, Zinc,	
E. St. Louis	11.000
Straits Tin, New York ..	92.918
Primary Aluminum	
Ingots, del.	20.500
Antimony, f.o.b. Laredo,	
Tex.	34.500
Nickel, f.o.b. refinery ..	60.000
Silver, New York	85.250

every grade of ZINC
for urgent military and
civilian requirements

SLAB ZINC



PRIME WESTERN

SELECT

BRASS SPECIAL

INTERMEDIATE

HIGH GRADE

SPECIAL HIGH GRADE

AMERICAN ZINC SALES COMPANY

Distributors for

AMERICAN ZINC, LEAD & SMELTING COMPANY

Columbus, O. Chicago St. Louis New York

Semifinished and Finished Steel Products

Mill prices as reported to STEEL, cents per pound except as otherwise noted. Changes shown in italics.
Code numbers following mill points indicate producing company; key on pages 180-181.

INGOTS, Carbon, Forging (NT)
Fontana, Calif. K1\$86.00
Munhall, Pa. U559.00

INGOTS Alloy (NT)
Detroit R7\$63.00
Fontana, Calif. K155.00
Midland, Pa. C1857.00
Munhall, Pa. U562.00

BILLETS, BLOOMS & SLABS

Carbon Rolling (NT)
Altiappa, Pa. J5\$62.50
Bessemer, Pa. U562.00
Clairton, Pa. U562.00
Elysia, Ala. T262.00
Fairfield, Ala. T262.00
Fontana, Calif. K181.00
Gary, Ind. U562.00
Johnstown, Pa. B262.00
Lackawanna, N.Y. B262.00
Munhall, Pa. U562.00
So. Chicago, Ill. U562.00
So. Duquesne, Pa. U562.00

Carbon, Forging (NT)

Altiappa, Pa. J5\$75.50
Bessemer, Pa. U575.50
Buffalo R275.50
Canton, O. R275.50
Clairton, Pa. U575.50
Cleveland R275.50
Conshohocken, Pa. A352.50
Detroit R775.50
Ensley, Ala. T275.50
Fairfield, Ala. T275.50
Fontana, Calif. K194.50
Gary, Ind. U575.50
Geneva, Utah C1175.50
Houston S585.50
Johnstown, Pa. B275.50
Lackawanna, N.Y. B275.50
Los Angeles B394.50
Munhall, Pa. U575.50
Seattle B394.50
So. Chicago R2, U5, W1475.50
So. Duquesne, Pa. U575.50
So. San Francisco B394.50

Alloy, Forging (NT)

Bethlehem, Pa. B2\$76.00
Buffalo R282.00
Canton, O. R282.00
Canton, O. T778.60
Conshohocken, Pa. A389.00
Detroit R785.00
Fontana, Calif. K1101.00
Gary, Ind. U582.00
Houston S592.00
Ind. Harbor, Ind. Y182.00
Johnstown, Pa. B276.00
Lackawanna, N.Y. B276.00
Los Angeles B3102.00
Massillon, O. R282.00
Midland, Pa. C1876.00
Munhall, Pa. U582.00
So. Chicago R2, U5, W1482.00
So. Duquesne, Pa. U582.00
Struthers, O. Y176.00
Warren, O. C1776.00

ROUNDS, SEAMLESS TUBE (NT)

Buffalo R2\$87.50
Canton, O. R292.50
Cleveland R292.50
Fontana, Calif. K1113.50
Gary, Ind. U592.50
Massillon, O. R392.50
So. Chicago, Ill. R292.50
So. Duquesne, Pa. U592.50

SHEET BAR (NT)

Fontana, Calif. K1\$93.18

SKELP

Altiappa, Pa. J53.85
Munhall, Pa. U53.75
Warren, O. R23.75
Youngstown R2, U53.75

WIRE RODS

Alton, Ill. L14.70
Alabama City, Ala. R24.525
Buffalo #124.525
Cleveland A74.525
Donora, Pa. A74.525
Fairfield, Ala. T24.525
Fontana, Calif. K15.325
Houston S54.925
Johnstown, Pa. B24.525
Joliet, Ill. A74.525
Kansas City, Mo. S54.865
Los Angeles B35.325
Minneapolis, Colo. C104.575
Monessen, Pa. P74.525
No. Tonawanda, N.Y. B114.525
Pittsburgh C115.175
Portsmouth, O. P124.725
Roebing, N.J. R54.425
So. Chicago, Ill. R24.525
Sparrows Point, Md. B24.625
Sterling, Ill. (1) N154.525
Struthers, O. Y14.525
Torrance, Calif. C115.325
Worcester, Mass. A74.825

STEEL SHEET PILING

Ind. Harbor, Ind. I-24.925
Lackawanna, N.Y. B24.925
Munhall, Pa. U54.925
So. Chicago, Ill. U54.925

STRUCTURALS

Carbon Steel Stand. Shapes
Alabama City, Ala. R24.10
Altiappa, Pa. J54.10
Bethlehem, Pa. B24.15
Bessemer, Ala. T24.15
Clairton, Pa. U54.10
Fairfield, Ala. T24.10
Fontana, Calif. K14.75
Gary, Ind. U54.10
Geneva, Utah C114.10
Houston S54.60
Ind. Harbor, Ind. I-24.10
Johnstown, Pa. B24.15
Kansas City, Mo. S54.80
Lackawanna, N.Y. B24.15
Los Angeles B34.80
Minneapolis, Colo. C104.10
Munhall, Pa. U54.10
Niles, Calif. (22) P14.56
Phoenixville, Pa. P44.95
Seattle B34.85
So. Chicago, Ill. U5, W144.10
So. San Francisco B34.75
Torrance, Calif. C114.80
Weirton, W. Va. W64.35

Wide Flange

Bethlehem, Pa. B24.15
Clairton, Pa. U54.10
Fontana, Calif. K14.80
Lackawanna, N.Y. B24.15
Munhall, Pa. U54.10
So. Chicago, Ill. U54.10

Alloy Stand. Shapes

Clairton, Pa. U55.00
Fontana, Calif. K16.40
Gary, Ind. U55.00
Munhall, Pa. U55.00
So. Chicago, Ill. U55.00

H.S., L.A. Stand. Shapes

Altiappa, Pa. J56.15
Bessemer, Ala. T26.15
Bethlehem, Pa. B26.15
Clairton, Pa. U56.15
Fairfield, Ala. T26.15
Fontana, Calif. K16.825
Gary, Ind. U56.15
Geneva, Utah C116.15
Ind. Harbor, Ind. I-26.15
Ind. Harbor, Ind. Y16.825
Johnstown, Pa. B26.20
Lackawanna, N.Y. B26.20
Los Angeles B36.85
Munhall, Pa. U56.15
Seattle B36.90
So. Chicago, Ill. U5, W146.15
So. San Francisco B36.80
Struthers, O. Y16.675

H.S., L.A. Wide Flange

Bethlehem, Pa. B26.20
Lackawanna, N.Y. B26.20
Munhall, Pa. U56.125
So. Chicago, Ill. U56.125

BEARING PILES

Munhall, Pa. U54.10
So. Chicago, Ill. U54.10

PLATES, High-Strength Low-Alloy

Altiappa, Pa. J56.25
Bessemer, Ala. T26.25
Clairton, Pa. U56.25
Cleveland R25.95
Cleveland J56.25
Conshohocken, Pa. A36.50
Ecorse, Mich. G57.10
Fairfield, Ala. T26.25
Fontana, Calif. (30) K16.95
Gary, Ind. U56.25
Geneva, Utah C116.25
Ind. Harbor, Ind. I-26.25
Ind. Harbor, Ind. Y16.75
Johnstown, Pa. B26.25
Munhall, Pa. U56.25
Pittsburgh J56.25
Seattle B37.15
Sharon, Pa. S36.25
So. Chicago, Ill. U5, W146.25
Sparrows Point, Md. B26.25
Warren, O. R25.95
Youngstown U56.25
Youngstown Y16.75

PLATES, Open-Hearth Alloy

Claymont, Del. C225.65
Coatesville, Pa. L75.75
Fontana, Calif. K15.60
Gary, Ind. U55.55
Johnstown, Pa. B25.55
Munhall, Pa. U55.55
Sharon, Pa. S35.70
So. Chicago, Ill. U5, W145.55
Sparrows Point, Md. B25.55

FLOOR PLATES

Cleveland J55.15
Conshohocken, Pa. A35.15
Ind. Harbor, Ind. I-25.15
Munhall, Pa. U55.15
So. Chicago, Ill. U55.15

PLATES, Carbon A.R.

Fontana, Calif. K15.90
Geneva, Utah C115.25

PLATES, Ingot Iron

Ashland, Ind. (1) A104.35
Ashland, Ind. (15) A104.85

Cleveland, C.I.4.70
Warren, O. C.I. R24.70

PLATES, Carbon Steel

Alabama City, Ala. R24.10
Altiappa, Pa. J54.10
Ashland, Ky. (15) A104.10
Bessemer, Ala. T24.10
Clairton, Pa. U54.10
Claymont, Del. C224.55
Cleveland J5, R24.10
Coatesville, Pa. L74.35
Conshohocken, Pa. A34.55
Ecorse, Mich. G54.65
Fairfield, Ala. T24.10
Fontana, Calif. (30) K14.75
Gary, Ind. U54.10
Granite City, Ill. G44.60
Geneva, Utah C114.10
Harrisburg, Pa. C56.50
Houston S54.60
Ind. Harbor, Ind. I-2, Y14.10
Johnstown, Pa. B24.10
Lackawanna, N.Y. B24.10
Minneapolis, Colo. C104.70
Munhall, Pa. U54.10
Pittsburgh J54.10
Riverdale, Ill. A14.10
Seattle B35.00
Sharon, Pa. S34.10
So. Chicago, Ill. U5, W144.10
Sparrows Point, Md. B24.10
Steubenville, O. W104.10
Warren, O. R24.10
Weirton, W. Va. W64.10
Youngstown R2, U5, Y14.10

PLATES, Wrought Iron

(Add 4.7% to base, extras)

Economy, Pa. B148.60

BARS, Hot-Rolled Carbon

Alabama City, Ala. R24.15
Altiappa, Pa. J54.15
Alton, Ill. L14.50
Atlanta, Ga. A114.45
Bessemer, Ala. T24.15
Buffalo R24.15
Clairton, Pa. U54.15
Cleveland R24.30
Detroit R74.30
Ecorse, Mich. G54.50
Emeryville, Calif. J74.90
Fontana, Calif. K14.85
Gary, Ind. U54.15
Houston S54.65
Ind. Harbor, Ind. I-2, Y14.15
Johnstown, Pa. B24.15
Kansas City, Mo. S54.85
Lackawanna, N.Y. B24.15
Los Angeles B34.85
Milton, Pa. B64.50
Minneapolis, Colo. C104.45
Niles, Calif. P14.65
No. Tonawanda, N.Y. B114.15
Pittsburgh C114.85
Pittsburgh J54.15
Portland, Ore. O44.90
Seattle B3, N144.90
So. Chicago R2, U5, W144.15
So. Duquesne, Pa. U54.15
So. San Francisco B34.90
Sterling, Ill. N154.75
Struthers, O. Y14.15
Torrance, Calif. C114.85
Weirton, W. Va. W64.30
Youngstown R2, U54.15

BAR SHAPES, Hot-Rolled Alloy

Clairton, Pa. U55.00

Fontana, Calif. K16.00
Gary, Ind. U55.00
Youngstown U55.00

BAR SIZE ANGLES; S. Shapes

Altiappa, Pa. J54.15
Atlanta A114.45
Niles, Calif. P14.65
San Francisco S75.10

BAR SIZE ANGLES; H.R. CARBON

Bethlehem, Pa. B24.15

BARS, Hot-Rolled Alloy

Bethlehem, Pa. B24.875
Buffalo R24.875
Canton, O. T74.72
Canton, O. R24.875
Clairton, Pa. U54.875
Detroit R75.025
Ecorse, Mich. G55.225
Fontana, Calif. K15.925
Gary, Ind. U54.875
Houston S55.375
Ind. Harbor, Ind. I-2, Y14.875
Johnstown, Pa. B25.575
Kansas City, Mo. S55.575
Lackawanna, N.Y. B24.875
Los Angeles B35.925
Massillon, O. R24.875
Midland, Pa. C184.875
So. Chicago R2, U5, W144.875
So. Duquesne, Pa. U54.875
Struthers, O. Y14.875
Warren, O. C174.875
Youngstown U54.875

BARS & SMALL SHAPES, H.R.

High-Strength Low-Alloy

Altiappa, Pa. J56.225
Bessemer, Ala. T26.225
Bethlehem, Pa. B25.925
Clairton, Pa. U56.225
Cleveland R25.925
Ecorse, Mich. G56.875
Fairfield, Ala. T26.225
Fontana, Calif. K17.475
Gary, Ind. U56.225
Ind. Harbor, Ind. I-2, Y16.225
Johnstown, Pa. B25.925
Lackawanna, N.Y. B25.925
Los Angeles B36.625
Pittsburgh J56.225
Seattle B36.975
So. Chicago W146.225
So. Duquesne, Pa. U56.225
So. San Francisco B36.975
Struthers, O. Y16.725
Youngstown U56.225

BARS, Cold-Finished Carbon

Altiappa, Pa. J55.20
Bessemer, Ala. T25.20
Beaver Falls, Pa. M125.20
Buffalo B55.25
Camden, N.J. P135.65
Carnegie, Pa. C125.20
Chicago W185.20
Cleveland A7, C205.20
Detroit P17, R75.35
Detroit B55.40
Donora, Pa. A75.20
Elysia, O. W84.925
Franklin, Pa. C11, N55.20
Gary, Ind. R25.20
Green Bay, Wis. F74.925
Hammond, Ind. L2, M135.20
Hartford, Conn. R25.85
Harvey, Ill. B55.20
Los Angeles R26.65

Mansfield, Mass. B55.5
Massillon, O. R2, R35
Monaca, Pa. S175
Newark, N.J. W185
New Castle, Pa. B45
Pittsburgh J55.5
Plymouth, Mich. P55
Putnam, Conn. W185
Readville, Mass. C145.4
St. Louis, Mo. M55
Spring City, Ill. W145
Struthers, O. Y15
Waukegan, Ill. A75
Youngstown F3, Y15

BARS, Cold-Finished Alloy

Altiappa, Pa. J56.3
Beaver Falls, Pa. M126.3
Bethlehem, Pa. B26.3
Buffalo B56.3
Camden, N.J. P136.3
Canton, O. R26.3
Canton, O. T76.3
Carnegie, Pa. C126.3
Chicago W186.3
Cleveland A7, C206.3
Detroit P17, R76.3
Detroit B56.3
Donora, Pa. A76.3
Elysia, O. W86.3
Gary, Ind. R26.3
Hammond, Ind. L2, M136.3
Hartford, Conn. R26.7
Harvey, Ill. B56.3
Lackawanna, N.Y. B26.3
Mansfield, Mass. B56.7
Massillon, O. R2, R36.3
Midland, Pa. C186.3
Monaca, Pa. S176.3
Newark, N.J. W186.3
Plymouth, Mich. P56.3
So. Chicago, Ill. R2, W146.3
Spring City, Pa. K36.3
Struthers, O. Y16.3
Warren, O. C176.3
Waukegan, Ill. A76.3
Worcester, Mass. A76.6
Youngstown F3, Y16.3

BARS, Reinforcing (Fabricated)

Alabama City, Ala. R24
Atlanta A114
Buffalo R24
Cleveland R24
Emeryville, Calif. J74
Fairfield, Ala. T24
Fontana, Calif. K14
Gary, Ind. U54
Houston S54
Ind. Harbor, Ind. I-24
Johnstown, Pa. B24
Kansas City, Mo. S54
Lackawanna, N.Y. B24
Los Angeles B34
Milton, Pa. B64
Minneapolis, Colo. C104
Niles, Calif. P14
Pittsburgh C114
Pittsburgh J54
Sandsprings, Okla. S55
Seattle B3, N145
So. Chicago, Ill. R24
So. Duquesne, Pa. U54
So. San Francisco B34
Sparrows Point, Md. B24
Sterling, Ill. (1) N154
Struthers, O. Y14
Torrance, Calif. C114
Youngstown R2, U54

Key to Producers

A1 Acme Steel Co.
A3 Allan Wood Steel Co.
A4 Allegheny Ludlum Steel
A7 American Steel & Wire
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.
A13 American Cladmetals Co.
B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B6 Bolardi Steel Corp.
B8 Braeburn Alloy Steel
B11 Buffalo Bolt Co.
B12 Buffalo Steel Div.
H. K. Porter Co.
B14 A. M. Byers Co.
B15 J. Bishop & Co.
C1 Calstrip Steel Corp.
C2 Calumet Steel Div.,
Borg-Warner Corp.
C4 Carpenter Steel Co.
C5 Central Iron & Steel Div.
Barium Steel Corp.
C7 Cleve. Cold Rolling Mills
C8 Cold Metal Products Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft
C16 Continental Steel Corp.
C17 Copperwell Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Steel Products
Dept., Wickwire Spencer
Steel Division
C23 Charter Wire Products
C24 G. O. Carlson Inc.
D1 Detroit Steel Corp.
D2 Detroit Tube & Steel
D4 Disston & Sons, Henry
D6 Driver Harris Co.
D7 Dickson Weatherproof
Nail Co.
D8 Damascus Tube Co.
D9 Wilbur D. Driver Co.
E1 Eastern Gas & Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire Steel Corp.
F2 First Sterling Inc.
F3 Fitzsimons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div.,
Borg-Warner Corp.
F6 Fritz-Moon Tube Co.
F7 Ft. Howard Steel & W
F8 Ft. Wayne Metals Co.
G2 Globe Iron Co.
G3 Globe Steel Tubes Co.
G4 Granite City Steel Co.
G5 Great Lake Steel Corp.
G6 Greer Steel Co.
H1 Hanna Furnace Corp.
H7 Helical Tube Co.
I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div.,
Borg-Warner Corp.
I-7 Indiana Steel & Wire Co.
J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.
K1 Kaiser Steel Corp.
K2 Keokuk Electro-Metal
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
K7 Kenmore Metals Corp.
L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L5 Lockhart Iron & Steel
L6 Lone Star Steel Co.
L7 Lukens Steel Co.

IS, Reinforcing

Fabricated; to consumers	
instown, 1/4-1" B2	5.25
msaCity S5	6.35
Angies B3	5.45
rtion, P11	5.25
rtion B3, N14	5.45
nd Springs S5	6.45
San Francisco B3	5.45
arrowsP, 1/4-1" B2	5.25
llamsport, Pa. S19	5.35

IL STEEL BARS

icagoHts.(3,4) C2	4.75
icagoHts.(3,4) I-2	4.50
anklin, Pa.(3,4) F5	4.75
rtWorth,Tex.(26) T4	4.85
rtion,(3) P11	4.75
rtion,(3) R2	4.05
awanda,(3,4) B12	5.00
llamsport,(3) S19	5.25
llamsport, Pa. S19	5.35

IRS, Wrought Iron

onomy,Pa.(S.R.) B14	9.60
onomy,Pa.(D.R.) B14	11.90
onomy(Staybolt) L5	15.50
ck.Rks.(S.R.) L5	10.40
ck.Rks.(D.R.) L5	14.00

HEETS, Hot-Rolled Steel

(18 gage and heavier)	
Alabama City, Ala. R2	3.925
shland, Ky.(8) A10	3.925
utler, Pa. A10	3.925
leveland J5, R2	3.925
Conshohocken, Pa. A3	4.925
Detroit M1	4.40
Ecorse, Mich. G5	4.125
airfield, Ala. T2	3.925
ary, Ind. U5	4.70
eneva, Utah C11	4.025
raniteCity, Ill. G4	4.30
nd, Harbor, Ind. I-2, Y1	3.925
rvn, Pa. U5	3.925
ackawanna, N.Y. B2	3.925
unhall, Pa. U5	3.925
Niles, O. N12	4.425
Pittsburgh, Calif. C11	4.625
Pittsburgh J5	3.925
iverdale, Ill. A1	3.925
Sharon, Pa. S3	4.225
So. Chicago, Ill. W14	3.925
sparrowsPoint, Md. B2	3.925
Steubenville, O. W10	3.925
Torrance, Calif. C11	4.625
Warren, O. R2	3.925
Weirton, W.Va. W6	3.925
West Leechburg, Pa. A4	3.925
Youngstown U5, Y1	3.925

SHEETS, H.R. (19 gage)

Alabama City, Ala. R2	5.125
Dover, O. R1	5.825
Mansfield, O. E6	5.80
Niles, O. N12	5.675
Torrance, Calif. C11	5.875

SHEETS, Cold-Rolled

High-Strength Low-Alloy	
Cleveland J5, R2	7.225
Ecorse, Mich. G5	7.675
Fontana, Calif. K1	8.275
Gary, Ind. U5	7.225
Indiana Harbor, Ind. Y1	7.725
Irvin, Pa. U5	7.225
Lackawanna (35) B2	7.225
Pittsburgh J5	7.225
Roberts, Ind. (38) R2	7.225
Warren, O. R2	7.225
Weirton, W.Va. W6	7.475
Youngstown Y1	7.725

M1 McLaugh Steel Corp.

M4 Mahoning Valley Steel	
M5 Medart Corp.	
M6 Mercer Tube & Mfg. Co.	
M8 Mid-States Steel & Wire	
M12 Monrath Steel Products	
M13 Monrath Steel Co.	
M16 Md. Fine & Special Wire	
M17 Metal Forming Corp.	

N2 National Supply Co.

N3 National Tube Div.	
N5 Nelson Steel & Wire Co.	
N6 New Eng. High Carb. Wire	
N8 Newman-Crosby Steel	
N9 Newport Steel Corp.	
N12 Niles Rolling Mill Div.	
N14 Nthwest. Steel Roll. Mills	
N15 Northwestern S.&W. Co.	
N16 New Delphos Mfg. Co.	

O3 Oliver Iron & Steel Corp.

O4 Oregon Steel Mills	
P1 Pacific States Steel Corp.	
P2 Pacific Tube Co.	
P4 Phoenix Iron & Steel Co.	
P5 Pilgrim Drawn Steel	
P6 Pittsburgh Coke & Chem.	
P7 Pittsburgh Steel Co.	
P9 Pittsburgh Tube Co.	
P11 Pollak Steel Co.	
P12 Portsmouth Division	
Port Steel Corp.	

SHEETS, H.R. (14 ga. heavier)

High-Strength Low-Alloy	
Cleveland J5, R2	5.90
Conshohocken, Pa. A3	6.15
Ecorse, Mich. G5	6.375
Fairfield, Ala. T2	5.90
Fontana, Calif. K1	7.00
Gary, Ind. U5	5.90
Ind. Harbor, Ind. I-2	5.90
Ind. Harbor, Ind. Y1	6.40
Irvin, Pa. U5	5.90
Lackawanna (35) B2	5.90
Munhall, Pa. U5	5.90
Pittsburgh J5	5.90
Sharon, Pa. S3	5.90
So. Chicago, Ill. U5	5.90
SparrowsPoint (38) B2	5.90
Warren, O. R2	5.90
Weirton, W.Va. W6	6.175
Youngstown Y1	5.90
Youngstown Y1	6.40

SHEETS, Cold-Rolled Steel

(Commercial Quality)	
Butler, Pa. A10	4.775
Cleveland J5, R2	4.775
Ecorse, Mich. G5	4.975
Fairfield, Ala. T2	4.775
Follansbee, W.Va. F4	5.775
Fontana, Calif. K1	5.875
Gary, Ind. U5	4.775
Granite City, Ill. G4	5.275
Ind. Harbor, Ind. I-2, Y1	4.775
Irvin, Pa. U5	4.775
Lackawanna, N.Y. B2	4.775
Middletown, O. A10	4.775
Pittsburgh, Calif. C11	5.725
Pittsburgh J5	4.775
SparrowsPoint, Md. B2	4.775
Steubenville, O. W10	4.775
Warren, O. R2	4.775
Weirton, W.Va. W6	4.775
West Leechburg, Pa. A4	5.45
Youngstown Y1	4.775

SHEETS, Cold No. 10 Steel

Alabama City, Ala. R2	5.275
shland, Ky.(8) A10	5.275
Canton, O. R2	5.275
Dover, O. R1	5.475
Fairfield, Ala. T2	5.275
Gary, Ind. U5	5.275
Granite City, Ill. G4	5.475
Ind. Harbor, Ind. I-2	5.325
Irvin, Pa. U5	5.275
Kokomo, Ind. (13) B16	5.925
Martins Ferry, O. W10	5.275
Niles, O. N12	6.275
Pittsburgh, Calif. C11	6.025
SparrowsPoint, Md. B2	5.275
Steubenville, O. W10	5.275
Torrance, Calif. C11	6.025
Weirton, W.Va. W6	5.275

SHEETS, Galvanized No. 10

High-Strength Low-Alloy	
Irvin, Pa. U5	7.025
SparrowsPoint (39) B2	8.075

SHEETS, Galvanized Steel

Canton, O. R2	5.825
Irvin, Pa. U5	5.925
Kokomo, Ind. (13) C16	5.925
Niles, O. N12	6.825

SHEETS ZINCGRIP STEEL

Butler, Pa. A10	5.525
Middletown, O. A10	5.525

SHEETS, Electro Galvanized

Cleveland R2 (28)	6.125
Niles, O. R2 (28)	6.125
Weirton, W.Va. W6	5.775

SHEETS, Well Casing

Fontana, Calif. K1	5.34
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P13 Precision Drawn Steel

P14 Pittsburgh Screw & Bolt Co.	
P15 Pittsburgh Metallurgical	
P16 Page Steel & Wire Div.	
Amer. Chain & Cable	
P17 Plymouth Steel Co.	
R1 Reeves Steel & Mfg. Co.	
R2 Republic Steel Corp.	
R3 Rhode Island Steel Corp.	
R4 Roehling's Sons, John A.	
R5 Rome Strip Steel Co.	
R7 Rotary Electric Steel Co.	
R8 Reliance Div., Eaton Mfg.	
R9 Rome Mfg. Co.	

S1 Seneca Wire & Mfg. Co.

S3 Sharon Steel Corp.	
S4 Sharon Tube Co.	
S5 Sheffield Steel Corp.	
S6 Shenango Furnace Co.	
S7 Simmons Co.	
S8 Simmons Saw & Steel Co.	
S9 Sloss-Sheffield S.&I. Div.	
S10 Standard Forgings Corp.	
S14 Standard Tube Co.	
S15 Stanley Works	
S16 Struthers Iron & Steel	
S17 Superior Drawn Steel Co.	
S18 Superior Steel Corp.	
S19 Sweet's Steel Co.	
S20 Southern States Steel	
S25 Stainless Welded Products	

BLUED Stock, 29 ga.

Yorkville, O. W10	7.20
Follansbee, W.Va. F4	7.30
Follansbee (23) F4	7.175

SHEETS, Enameling Iron

Ashland, Ky.(8) A10	5.175
Cleveland R2	5.175
Gary, Ind. U5	5.175
Granite City, Ill. G4	5.875
Ind. Harbor, Ind. I-2	5.875
Irvin, Pa. U5	5.175
Middletown, O. A10	5.175
Youngstown Y1	5.175

BLACK PLATE

(Base Box)	
Alliquippa, Pa. J5	\$6.50
Fairfield, Ala. T2	6.60
Gary, Ind. U5	6.50
Granite City, Ill. G4	6.50
Ind. Harbor, Ind. I-2, Y1	6.50
Irvin, Pa. U5	6.50
Niles, O. R2	6.50
Pittsburgh, Calif. C11	7.25
SparrowsPoint, Md. B2	6.60
Warren, O. R2	6.50
Weirton, W.Va. W6	6.50
Yorkville, O. W10	6.50

HOLLOWARE ENAMELING

Black Plate (29 gage)	
Follansbee, W.Va. F4	6.10
Gary, Ind. U5	6.10
Granite City, Ill. G4	6.30
Ind. Harbor, Ind. Y1	6.10
Irvin, Pa. U5	6.10
Yorkville, O. W10	6.55

SHEETS, Culvert

Ashland, Ky. A1	6.325
Canton, O. R2	6.475 6.925
Fairfield (41) T2	6.075 6.325
Gary, Ind. U5	6.075 6.325
Ind. Harbor I-2	6.075 6.325
Irvin, Pa. (41) U5	6.075 6.325
Kokomo, Ind. C18	6.525
Martins Ferry, O. W10	6.075
Pittsburgh, Pa. B2	6.075
SparrowsPoint, Pa. C11	6.625

SHEETS, Hot-Rolled Ingot Iron

18 Gage and Heavier	
Ashland, Ky.(8) A10	4.175
Cleveland R2	4.525
Ind. Harbor, Ind. I-2	4.175
Warren, O. R2	4.525

SHEETS, Cold-Rolled Ingot Iron

Butler, Pa. A10	5.275
Cleveland R2	5.375
Middletown, O. A10	5.275
Warren, O. R2	5.375

SHEETS, Galvanized Ingot Iron

No. 10 flat	
Ashland, Ky.(8) A10	5.325
Canton, O. R2	6.025

SHEETS, ZINCGRIP Ingot Iron

Butler, Pa. A10	5.775
Middletown, O.	5.775

SHEETS, ALUMINIZED

Butler, Pa. A10	8.625
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SHEETS, Long Term, Ingot Iron

Middletown, O. A10	6.075
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MANUFACTURING TERNES

(Special Coated)	
Fairfield, Ala. T2	\$7.85
Gary, Ind. U5	7.75
Irvin, Pa. U5	7.75
Yorkville, O. W10	7.75

SHEETS, LT. Coated Ternes, 6 lb

Yorkville, O. W10	\$8.65
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S26 Specialty Wire Co. Inc.

T2 Tenn. Coal & Iron Div.	
T3 Tenn. Prod. & Chem.	
T4 Texas Steel Co.	
T5 Thomas Strip Division,	
Pittsburgh Steel Co.	
T6 Thompson Wire Co.	
T7 Timken Roller Bearing	
T9 Tonawanda Iron Div.	
Am. Rail & Stan. San.	
T13 Tube Methods Inc.	
U4 Universal-Cyclops Steel	
U5 United States Steel Corp.	
U6 Vanadium-Alloys Steel	
U7 Vulcan Crucible Steel Co.	
W1 Wallace Barnes Co.	
W2 Wallingford Steel Co.	
W3 Washburn Wire Co.	
W4 Washington Steel Corp.	
W6 Weirton Steel Co.	
W7 W. Va. Steel & Mfg. Co.	
W8 West Auto. Mach. Screw	
W9 Wheeland Tube Co.	
W10 Wheeling Steel Corp.	
W12 Wickwire Spencer Steel	
W13 Wilson Steel & Wire Co.	
W14 Wisconsin Steel Div.,	
International Harvester	
W15 Woodward Iron Co.	
W18 Wyckoff Steel Co.	
Y1 Youngstown Sheet & Tube	

SHEETS, Mfg. Ternes, 8 lb

(Commercial Quality)	
Gary, Ind. U5	\$9.75
Yorkville, O. W10	9.75

SHEETS, Long Term Steel

(Commercial Quality)	
Beech Bottom, W.Va. W10	5.675
Gary, Ind. U5	5.875
Mansfield, O. E6	6.25
Middletown, O. A10	5.875
Niles, O. N12	6.275
Weirton, W.Va. W6	5.875

ROOFING SHORT TERNES

(8 lb Coated)	
Gary, Ind. U5	9.75
TIN PLATE, American 125	1.50
Coke (Base Box) 1b	1b
Alliquippa, Pa. J5	\$8.70 \$8.95
Fairfield, Ala. T2	8.80 9.05
Gary, Ind. U5	8.70 8.95
Ind. Har. I-2, Y1	8.70 8.95
Irvin, Pa. U5	8.70 8.95
Pitts., Cal. C11	9.45 9.70
Sp. Pt., Md. B2	8.80 9.05
Warren, O. R2	8.70
Weirton, W.Va. W6	8.70 8.95
Yorkville, O. W10	8.70 8.95

STRIP, Hot-Rolled

High-Strength Low-Alloy	
Bessemer, Ala. T2	5.65
Conshohocken, Pa. A3	6.20
Ecorse, Mich. G5	6.50
Fairfield, Ala. T2	5.65
Fontana, Calif. K1	7.05
Gary, Ind. U5	5.95
Ind. Harbor, Ind. I-2	5.95
Ind. Harbor, Ind. Y1	6.45
Lackawanna, N.Y. B2	6.00
Los Angeles (25) B3	6.40

TIN PLATE, Electrolytic (Base Box)

0.25 lb	0.50 lb	0.75 lb
Alliquippa, Pa. J5	\$7.40	\$7.65
Fairfield, Ala. T2	7.50	7.75
Gary, Ind. U5	7.40	7.65
Granite City, Ill. G4	7.60	7.85
Indiana Harbor, Ind. I-2, Y1	7.40	7.65
Irvin, Pa. U5	7.40	7.65
Niles, O. R2	7.40	7.65
Pittsburgh, Calif. C11	8.15	8.40
SparrowsPoint, Md. B2	7.50	7.75
Weirton, W.Va. W6	7.40	7.65
Yorkville, O. W10	7.40	7.65

SHEETS, SILICON, H.R. or C.R. (22 Ga.)

Arma- Elec- Dyna-	
COILS (cut lengths 1/2 or lower) Field	
Beech Bottom W10 (cut lengths)	8.35 9.60 10.40
Brackenridge, Pa. A4	8.35 9.60 10.40
Granite City, Ill. G4 (cut lengths)	8.55 9.80
Indiana Harbor, Ind. I-2	8.05 8.35 8.65
Mansfield, O. E6 (cut lengths)	7.55 7.85 8.15
Newport, Ky. N9 (cut lengths)	7.55 7.85 8.15

MARKET PRICES

STRIP, Hot-Rolled Carbon

Ala.City, Ala. (25) R2	3.925
Alton, Ill. L1	4.20
Ashland, Ky. (8) A10	3.925
Atlanta A11	4.475
Bessemer, Ala. T2	3.925
Bridgeport, Conn. (10) S15	4.425
Buffalo (27) R2	3.925
Butler, Pa. A10	3.925
Carnegie, Pa. S18	4.425
Conshohocken, Pa. A3	4.325
Detroit M1	4.40
Ecorse, Mich. G5	4.225
Fairfield, Ala. T2	3.925
Fontana, Calif. K1	4.70
Gary, Ind. U5	3.925
Houston, Tex. S5	4.425
Ind. Harbor, Ind. I-2	3.925
Johnstown, Pa. B2	3.925
Kansas City, Mo. (9) S5	4.425
Lackawanna, N.Y. (32) B2	3.925
Los Angeles (25) B3	4.675
Milton, Pa. B6	4.35
Minneapolis, Colo. C10	4.475
New Britain (10) S15	4.725
New Orleans, N.Y. B11	3.925
Pittsburgh, Pa. C11	4.575
Riverdale, Ill. A1	3.925
San Francisco S7	5.10
Seattle (25) B3	4.925
Seattle N14	4.925
Sharon, Pa. S3	4.225
So. Chicago, Ill. W14	3.925
So. San Francisco (25) B3	4.675
Sparrows Point, Md. B2	3.925
Torrance, Calif. C11	4.675
Warren, O. A4	3.925
Weirton, W. Va. W6	5.10
West Leechburg, Pa. A4	3.975
Youngstown Y1, U5	3.925

STRIP, Hot-Rolled Alloy

Bridgeport, Conn. (10) S15	6.45
Carnegie, Pa. S18	6.45
Fontana, Calif. K1	7.80
Gary, Ind. U5	6.40
Houston, Tex. S5	6.90
Kansas City, Mo. S5	7.10
Los Angeles B3	7.60
Midland, Pa. C18	5.85
New Britain, Conn. (10) S15	6.45
Sharon, Pa. S3	6.45
So. Chicago W14	6.40
Youngstown U5	6.40

STRIP, Cold-Rolled Carbon

Anderson, Ind. (40) G6	5.80
Bridgeport, Conn. (10) S15	6.15
Butler, Pa. A10	5.45
Cleveland A7, J5	5.45
Dearborn, Mich. D3	6.05
Detroit D2	5.95
Detroit M1	5.45
Ecorse, Mich. G5	5.80
Follansbee, W. Va. F4	5.45
Fontana, Calif. K1	7.35
Franklin Park, Ill. (40) T6	5.70
Ind. Harbor, Ind. I-2	5.70
Lackawanna, N.Y. B2	5.45
Los Angeles C1	7.50
Mattapan, Mass. T6	6.30
Midtown, O. A10	5.45
New Britain (10) S15	6.15
New Castle, Pa. (14) B4	5.45
New Haven, Conn. A7	5.95
New Haven, Conn. D2	6.20
Pawtucket, R.I. R3	6.20
Pawtucket, R.I. (21) A3	6.65
Riverdale, Ill. (40) A1	5.70
Rome, N.Y. (29) R6	5.45
Sharon, Pa. S3	5.80
Sparrows Point, Md. B2	5.45
Trenton, N.J. R5	6.45
Wallingford, Conn. W2	6.30
Warren, O. (40) T5	5.70
Warren, O. R2	5.45
Weirton, W. Va. W6	5.45
Youngstown C8	5.45
Youngstown Y1	5.45

STRIP, Electro Galvanized

Dover, O. G6	5.70
Warren, O. T5	5.70
Weirton, W. Va. W6	5.10
Youngstown C8	5.95

TIGHT COOPERAGE HOOP

Atlanta A11	4.65
Riverdale, Ill. A1	4.50
Sharon, Pa. S3	4.55
Youngstown U5	4.35

ROPE WIRE

Alton, Ill. L1	9.45
Bartonsville, Ill. K4	9.35
Buffalo W12	9.35
Fostoria, O. S1 (43)	9.35
Johnstown, Pa. B2	8.85
Minneapolis, Colo. C10	9.35
Muncie, Ind. I-7	9.55
Palmer, Mass. W12	9.65
Portsmouth, O. P12	9.35
Roebing, N.J. R5	9.25
Sparrows Pt., Md. B2	9.45
Struthers, O. Y1	9.35
Worcester, Mass. T6	9.65

(A) Flow and Mild Flow; add 0.25c for improved plow.

WIRE, Merchant Quality

Ala.City, Ala. (25) R2	3.925
Alton, Ill. L1	4.20
Ashland, Ky. (8) A10	3.925
Atlanta A11	4.475
Bessemer, Ala. T2	3.925
Bridgeport, Conn. (10) S15	4.425
Buffalo (27) R2	3.925
Butler, Pa. A10	3.925
Carnegie, Pa. S18	4.425
Conshohocken, Pa. A3	4.325
Detroit M1	4.40
Ecorse, Mich. G5	4.225
Fairfield, Ala. T2	3.925
Fontana, Calif. K1	4.70
Gary, Ind. U5	3.925
Houston, Tex. S5	4.425
Ind. Harbor, Ind. I-2	3.925
Johnstown, Pa. B2	3.925
Kansas City, Mo. (9) S5	4.425
Lackawanna, N.Y. (32) B2	3.925
Los Angeles (25) B3	4.675
Milton, Pa. B6	4.35
Minneapolis, Colo. C10	4.475
New Britain (10) S15	4.725
New Orleans, N.Y. B11	3.925
Pittsburgh, Pa. C11	4.575
Riverdale, Ill. A1	3.925
San Francisco S7	5.10
Seattle (25) B3	4.925
Seattle N14	4.925
Sharon, Pa. S3	4.225
So. Chicago, Ill. W14	3.925
So. San Francisco (25) B3	4.675
Sparrows Point, Md. B2	3.925
Torrance, Calif. C11	4.675
Warren, O. A4	3.925
Weirton, W. Va. W6	5.10
West Leechburg, Pa. A4	3.975
Youngstown Y1, U5	3.925

WIRE, Galv'd ACSR for Cores

Bartonsville, Ill. K4	9.50
Minneapolis, Colo. C10	9.50
Muncie, Ind. I-7 (43)	9.30
Palmer, Mass. W12	9.50
Portsmouth, O. P12	9.35
Roebing, N.J. R5	9.25
Sparrows Pt., Md. B2	9.45
Struthers, O. Y1	9.35
Worcester, Mass. T6	9.65

WIRE, MB Spring, High Carbon

Altaquipa, Pa. J5	6.925
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WIRE, Cold-Rolled Flat

Altaquipa, Pa. J5	7.45
Buffalo W12	7.45
Cleveland A7	7.45
Crawfordsville, Ind. M8 (43)	7.55
Dover, O. G6	7.45
Fostoria, O. S1 (43)	7.45
Kokomo, Ind. C16	7.55
Franklin Park, Ill. T6	7.60
Massillon, O. R3	6.95
Monessen, Pa. P7 (43)	6.10
Pawtucket, R.I. R3	7.75
Trenton, N.J. R5 (43)	7.25
Worcester, Mass. A7	7.75
Worcester, Mass. T6	7.75
Worcester, Mass. W12	7.75

WIRE, Galv'd ACSR for Cores

Bartonsville, Ill. K4	9.50
Minneapolis, Colo. C10	9.50
Muncie, Ind. I-7 (43)	9.30
Palmer, Mass. W12	9.50
Portsmouth, O. P12	9.35
Roebing, N.J. R5	9.25
Sparrows Pt., Md. B2	9.45
Struthers, O. Y1	9.35
Worcester, Mass. T6	9.65

WIRE, Fine and Weaving (8" Coils)

Alton, Ill. L1	10.15
Bartonsville, Ill. K4	10.65
Buffalo W12	10.65
Chicago W13	10.55
Cleveland (42) A7	10.55
Crawfordsville, Ind. M8	10.55
Fostoria, O. S1 (43)	8.90
Johnstown, Pa. B2 (43)	8.90
Kokomo, Ind. C16	10.55
Monessen, Pa. P16	10.55
Muncie, Ind. I-7	10.55
Palmer, Mass. W12	10.55
Roebing, N.J. R5	10.35
So. San Francisco C10	10.90
Waukegan, Ill. A7	10.55
Worcester, Mass. T6	10.85

WIRE, Tied Bead

Bartonsville, Ill. K4	12.65
Monessen, Pa. P16	12.00
Roebing, N.J. R5	12.30

WOVEN FENCE, 9-15", Ga. Col.

Alabama City, Ala. R2	140
Ala. City, Ala. R2	222
Altaquipa, Pa. J5	1391
Atlanta A11	146
Bartonsville, Ill. (19) K4	143
Crawfordsville, Ind. M8	145
Dover, O. G6	140
Duluth, Minn. A7	140
Fairfield, Ala. T2	140
Houston, Tex. S5	148
Johnstown, Pa. B2	143
Johnstown 17ga., 8" B2	234
Johnstown, 4" B2	237
Joliet, Ill. A7	140
Kansas City, Mo. S5	152
Kokomo, Ind. C16	142
Minneapolis, Colo. C10	146
Monessen, Pa. P16	138
Pittsburgh, Calif. C11	163
Rankin, Pa. A7	140
So. Chicago, Ill. R2	140
Sterling, Ill. (1) N15	143

*On 14c zinc; \$17.5c zinc.

FENCE POSTS

Chicago Hts., Ill. C2, I-2	145
Duluth, Minn. A7 (49)	143
Franklin, Pa. F5	143
Johnstown, Pa. B2	143
Marion, O. P11	140
Minneapolis, Colo. C10	138
Moline, Ill. R2	136
So. Chicago, Ill. R2	140
Tonawanda, N.Y. B12	148
Williamsport, Pa. S19	158

WIRE, Barbed

Alabama City, Ala. R2	153
Altaquipa, Pa. J5	148
Atlanta A11	159
Bartonsville, Ind. (19) K4	156
Crawfordsville, Ind. M8	159
Donora, Pa. A7	153
Duluth, Minn. A7	153
Fairfield, Ala. T2	153

Alton, Ill. L1

Bartonsville, Ill. K4	7.025
Buffalo W12	6.925
Cleveland A7	6.925
Donora, Pa. A7	6.925
Duluth, Minn. A7	6.925
Fostoria, O. S1 (43)	6.25
Johnstown, Pa. B2	6.925
Millbury (12) N6 (43)	8.05
Minneapolis, Colo. C10 (43)	6.50
Monessen, Pa. P7 (43)	6.35
Monessen, Pa. P16	6.95
Muncie, Ind. I-7 (43)	7.15
Palmer, Mass. W12	7.25
Pittsburgh, Calif. C11	7.875
Roebing, N.J. R5	6.85
Portsmouth, O. P12	6.925
So. Chicago, Ill. R2	6.925
So. San Fran. C10	7.875
Sparrows Pt., Md. B2	7.025
Struthers, O. Y1	6.925
Trenton, N.J. A7	7.225
Waukegan, Ill. A7	6.925
Worcester, T6	7.225
Worcester, Mass. J4	7.225

WIRE, Upholstery Spring

Alton, Ill. L1	6.85
Buffalo W12	6.625
Cleveland A7	6.825
Donora, Pa. A7	6.625
Duluth, Minn. A7	6.625
Johnstown, Pa. B2	6.625
Los Angeles B3	7.575
Minneapolis, Colo. C10	6.525
Monessen, Pa. P7	6.275
Monessen, Pa. P16	6.625
New Haven, Conn. A7	6.925
Palmer, Mass. W12	6.925
Pittsburgh, Calif. C11	7.575
Portsmouth, O. P12	6.625
Roebing, N.J. R5	6.575
So. Chicago, Ill. R2	6.275
So. San Francisco C10	7.575
Sparrows Point, Md. B2	6.725
Torrance, Calif. C11	7.575
Trenton, N.J. A7	6.925
Waukegan, Ill. A7	6.625
Worcester, Mass. A7	6.925

WIRE, Fine and Weaving (8" Coils)

Alton, Ill. L1	10.15
Bartonsville, Ill. K4	10.65
Buffalo W12	10.65
Chicago W13	10.55
Cleveland (42) A7	10.55
Crawfordsville, Ind. M8	10.55
Fostoria, O. S1 (43)	8.90
Johnstown, Pa. B2 (43)	8.90
Kokomo, Ind. C16	10.55
Monessen, Pa. P16	10.55
Muncie, Ind. I-7	10.55
Palmer, Mass. W12	10.55
Roebing, N.J. R5	10.35
So. San Francisco C10	10.90
Waukegan, Ill. A7	10.55
Worcester, Mass. T6	10.85

WIRE, Tied Bead

Bartonsville, Ill. K4	12.65
Monessen, Pa. P16	12.00
Roebing, N.J. R5	12.30

WOVEN FENCE, 9-15", Ga. Col.

Alabama City, Ala. R2	140
Ala. City, Ala. R2	222
Altaquipa, Pa. J5	1391
Atlanta A11	146
Bartonsville, Ill. (19) K4	143
Crawfordsville, Ind. M8	145
Dover, O. G6	140
Duluth, Minn. A7	140
Fairfield, Ala. T2	140
Houston, Tex. S5	148
Johnstown, Pa. B2	143
Johnstown 17ga., 8" B2	234
Johnstown, 4" B2	237
Joliet, Ill. A7	140
Kansas City, Mo. S5	152
Kokomo, Ind. C16	142
Minneapolis, Colo. C10	146
Monessen, Pa. P16	138
Pittsburgh, Calif. C11	163
Rankin, Pa. A7	140
So. Chicago, Ill. R2	140
Sterling, Ill. (1) N15	143

*On 14c zinc; \$17.5c zinc.

FENCE POSTS

Chicago Hts., Ill. C2, I-2	145
Duluth, Minn. A7 (49)	143
Franklin, Pa. F5	143
Johnstown, Pa. B2	143
Marion, O. P11	140
Minneapolis, Colo. C10	138
Moline, Ill. R2	136
So. Chicago, Ill. R2	140
Tonawanda, N.Y. B12	148
Williamsport, Pa. S19	158

WIRE, Barbed

Alabama City, Ala. R2	153
Altaquipa, Pa. J5	148
Atlanta A11	159
Bartonsville, Ind. (19) K4	156
Crawfordsville, Ind. M8	159
Donora, Pa. A7	153
Duluth, Minn. A7	153
Fairfield, Ala. T2	153

Houston, Tex. S5

Johnstown, Pa. B2	156
Joliet, Ill. A7	153
Kansas City, Mo. S5	165
Kokomo, Ind. C16	155
Minneapolis, Colo. C10	153
Monessen, Pa. P7	147
Pittsburgh, Calif. C11	173
Rankin, Pa. A7	153
So. Chicago, Ill. R2	153
Sparrows Point, Md. B2	155
Sterling, Ill. (1) N15	156

*On 14c zinc; \$17.5c zinc.

BALE TIES, Single Loop

Alabama City, Ala. R2	131
Altaquipa, Pa. J5	127
Atlanta A11	134
Bartonsville, Ind. (19) K4	131
Crawfordsville, Ind. M8	133
Donora, Pa. A7	131
Duluth, Minn. A7	131
Fairfield, Ala. T2	131
Joliet, Ill. A7	131
Kansas City, Mo. S5	161
Kokomo, Ind. C16	151
Minneapolis, Colo. C10	137
Pittsburgh, Calif. C11	173
So. Chicago, Ill. R2	149
So. San Fran. Calif. C10	173
Sparrows Point, Md. B2	151
Sterling, Ill. (1) N15	149

WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound, subject to extras, f.o.b. warehouse. City delivery charges are 20 cents per 100 lb except: New York, 3 cents; Philadelphia, 25 cents; Birmingham, Cincinnati, San Francisco, St. Paul, 15 cents.)

	SHEETS			STRIP		BARS			Standard Structural Shapes	PLATES	
	Hot Rolled	Cold Rolled	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.‡	H.R. Alloy 4140††§		Carbon	Floor
Baltimore	6.20	7.64	7.81	7.00	...	6.86	7.92	12.04	6.98	6.85	7.98
Boston	6.89	7.83	9.23	7.13	...	6.87	8.10	12.10	7.06	7.18	8.26
Buffalo	5.95	6.85	8.71	6.47	...	6.05	7.15	11.85	6.20	6.38	7.67
Birmingham ...	6.10	7.00	8.00²	6.30	...	6.15	8.90	....	6.35	6.35	8.65
Charlotte, N. C.	6.75	7.55	8.49	6.70	...	6.80	8.09	....	6.80	6.85	...
Chicago	6.18	7.12	8.05	6.42	...	6.28	7.30	11.75	6.46	6.38	7.46
Cincinnati	6.51	7.19	8.47	6.72	...	6.58	7.66	12.17	6.93	6.85	7.88
Cleveland	6.18	7.12	8.15	6.58	...	6.34	7.40	11.89	6.79	6.50	7.79
Detroit	6.22	7.02	8.04	6.39	6.85	6.27	7.32	11.57	6.54	6.55	7.52
Houston	6.89	...	8.62	7.16	...	7.13	...	....	6.94	6.86	8.24
Jersey City, N.J.	6.54	7.45	8.72	6.82	...	6.75	7.90	11.84	6.50	6.67	8.01
Los Angeles ...	7.25	9.00	9.35	7.55	11.20	7.25	9.85	13.05	7.35	7.20	9.25
Milwaukee	6.35	7.29	8.22	6.59	...	6.45	7.58	11.92	6.63	6.55	7.63
Moline, Ill.	6.31	7.17	8.25	6.45	...	6.33	7.37	....	6.42	6.38	...
New York	6.54	7.45	8.72	6.82	...	6.75	7.90	11.84	6.50	6.67	8.01
Newark, N. J. .	6.78	7.75	9.02	7.16	...	7.06	7.90	....	6.90	6.99	8.30
Norfolk, Va. .	6.90	...	...	7.20	...	7.20	8.50	....	7.20	7.15	7.85
Philadelphia ...	6.53	7.55	8.35	7.02	8.80	6.87	7.94	11.89	6.67	6.63	7.65
Pittsburgh	6.18	7.12	8.60	6.55	...	6.28	7.40	11.75	6.46	6.33	7.46
Portland, Oreg.,	7.80	9.05	9.30	7.50	...	7.25	9.40	....	7.25	7.05	9.25
Richmond, Va. .	6.50	7.45	8.00	7.10	...	7.05	7.95	....	7.10	6.85	8.10
St. Louis	6.48	7.42	8.35	6.72	...	6.58	7.70	12.05	6.86	6.73	7.86
St. Paul	6.47	7.48	8.56	6.77	...	6.64	7.78	....	6.73	6.69	7.92
San Francisco..	7.35	8.70	9.90	7.60	...	7.15	9.85	13.05	7.25	7.20	9.25
Seattle-Tacoma.	8.15	8.70	10.10	8.02	...	7.58	10.13	13.50	7.50	7.59	9.40
Spokane (city).	7.40	9.40	9.80	7.15	...	7.10	9.60	13.20	7.00	7.10	9.15
Washington ...	6.71	8.15	8.35	7.51	...	7.37	8.43	....	7.49	7.36	8.49

*Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ includes 35-cent special bar quality extra; § as rolled; ¶ as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; ²—500 to 9999 lb; ³—1000 to 1999 lb.

Warehouses Feel Vacation Suspensions

Decline in order volume, expected through July, may result in some improvement in inventories. Most distributors' prices now reflect recent mill increases

Philadelphia — Warehouses anticipate a seasonal lull this month due to vacation influences. Nevertheless, business will be substantial, with demand pressure likely to continue in shapes, hot and cold sheets, bars and plates. Some types of manufacturers wire also are likely to continue in brisk demand.

Most distributors have adjusted their prices upward in line with increases in mill base prices. June orders were off a little volume-wise but up price-wise.

Cleveland — With the vacation season in full bloom, district warehouses report order volume off noticeably. Expectations are the slump will be felt pretty much through July, demand picking up gradually as the summer passes.

Most distributors have announced price increases to offset the higher mill base prices recently effected. Only minor resistance to the increase has been experienced with popular items still in limited supply.

Warehouse stocks, over-all, are improved over some months back but they are still unbalanced. Hot and cold-rolled sheet inventories are limited, and stocks are moving out of

distributors' warehouses almost as quickly as received from the mills. Other products in short supply are large-size bars and heavy plates.

Cincinnati — Warehouses here are operating on about the same level as a week ago. Inventories are unchanged.

Birmingham — Warehouse interests in the Birmingham district say they still are not being adequately supplied. Improved receipt of stocks in other sections has not been duplicated here, according to local sellers. Some items are completely absent from local bins.

Washington — A leading warehouse here says business in June was 10 to 15 per cent below that of the corresponding period one year ago. Hot and cold sheets and shapes are in strong demand, but pressure is definitely easing for hot carbon bars and for certain thicknesses of plate, except for light gage material.

Chicago — Warehouse steel order volume doesn't foreshadow balance between supply and demand is close at hand. Business remains good with the slack in farm implements being taken up quickly by other consuming fields. Some inventory improve-

ment made prior to June was lost during that month.

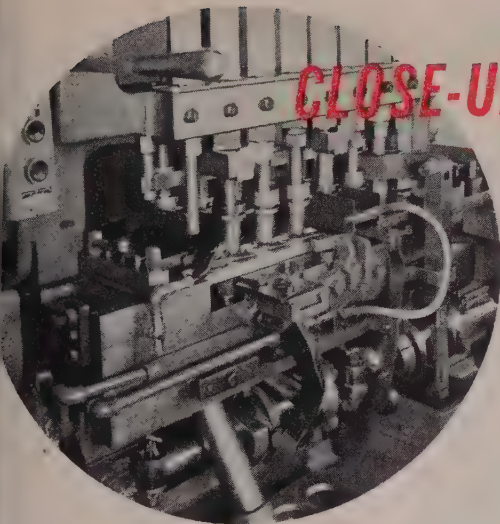
Seattle — Warehouse volume is fair but buyers are hesitant about forward purchases. It is expected business will stabilize as soon as the trade is adjusted to the new price schedules which became effective last week. No serious resistance to the higher levels is encountered. Plates and sheets continue in tight supply.

Los Angeles — Prices on warehouse products are up \$4 to \$9 per ton. Hot-rolled sheet advanced 20 cents to \$7.25 per 100 lb. Higher by 30 cents each per 100 pounds are carbon plates at \$7.20, cold-rolled sheet at \$9, and hot-rolled 4140 alloy bars at \$13.05. Floor plates are up 35 cents to \$9.25. Hot-rolled bars are 40 cents higher at \$7.25 and cold-finished rounds are up 45 cents at \$9.85. Hot-rolled strip is 50 cents higher at \$7.55 and structural shapes 60 cents. Galvanized sheets are up 90 cents to \$9.35. Reaction of warehouse customers to price increases is mixed.

San Francisco — Distributors have boosted prices to compensate for the increases effected by most mills.

Pittsburgh — Warehouse steel prices have been advanced to reflect the higher prices posted by the mills.

Demand from warehouse is good. As a result, distributors are short of hot-rolled and cold-rolled carbon sheets, structurals, large carbon bars and bar shapes. Although demand for light plate has fallen off, it continues fair.



Close-up of an 8-plunger WF cam eyelet machine showing tools and special attachments. Included are a lever type blank holder, a scrap box fitted with a compressed air blower and oscillating shutter, dovetailed punch holders and a hook type side stabber.

CLOSE-UP

of versatile

mass-production ability

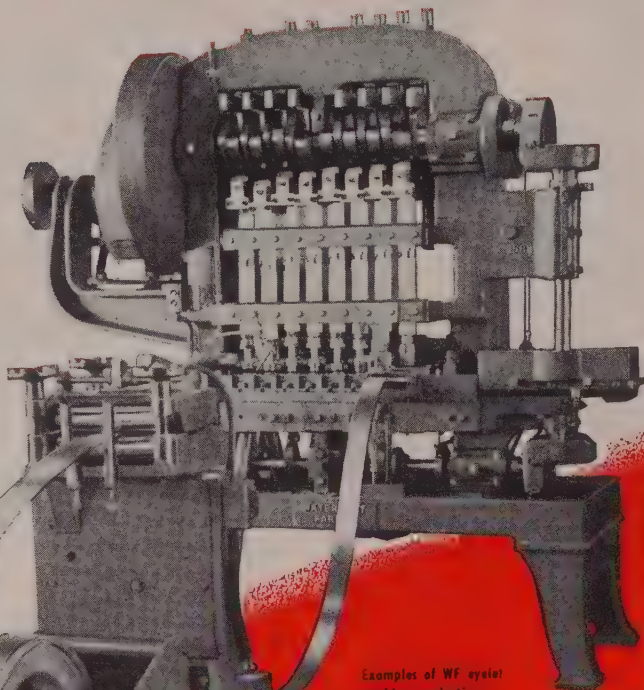
Waterbury Farrel EYELET MACHINES

WF Multiple Plunger Presses Are Built For Long-Lived Automatic Production Of A Wide Range Of Products

- Known throughout the world for profit-making, high efficiency, low maintenance performance.
- Cam type is available in seven sizes . . . 6 to 12 plungers . . . cam strokes ranging from 1 1/4" to 6" . . . blank diameters up to 4 1/2".
- For increased versatility many special attachments can be "engineered-in" to meet specific needs.
- Improved WF design includes cam rollers, friction clutch drive and lever strippers.
- For a heavier range of work, WF crank type eyelet machines are available in five standard sizes.

Write today for complete free information on cam or crank eyelet machines or on any of the WF equipment listed below.

This WF production unit includes coil box and straightener feeding into an 8-plunger cam eyelet machine.



Examples of WF eyelet machine production



Typical sequence of operation

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Offices: Chicago, Cleveland and Millburn, N. J.

POWER PRESSES — Crank, Cam and Toggle; also Rock and Pinion Presses • **Eyelet Machines** • Multiple Plunger Presses • Horizontal and Hydraulic Presses, etc. **MILL MACHINERY** — Rolling Mills: Strip, Rod, Wire Flattening, (For Ferrous and Non Ferrous Metals) • Also Slitters • Straighteners • Cut-off Saws • Coilers • Winders, etc. **WIRE MILL EQUIPMENT** — Continuous Wire Drawing Machines (Upright Cone and Tandem) • Wire Flattening Mills • Chain Draw Benches • Pointers • Swagers • Bull Blocks • String-up Machines • Spoolers, etc. **COLD PROCESS BOLT & NUT MACHINERY** — Headers (all types) • Rivet Machinery • Trimmers • Thread Rolling Machines • Slotters • Nut Formers and Tappers, etc.





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Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston	Newark	Rochester†	
Cincinnati	Indianapolis	New Orleans	St. Louis	(†sales office only)

Light Sheet Supply Seen Persisting

Little relief indicated over summer with substantial order carryover from second quarter. Demand pressure unabated despite appearance of a few cancellations

Sheet and Strip Prices, Page 181 & 182

Pittsburgh—Initial production runs from the new 66-inch hot-rolled sheet mill at the Allenport, Pa., Works of Pittsburgh Steel Co. have started. Output of the new mill is booked up for some time ahead. The mill is running one turn now. As additional crews are trained, the number of turns will be increased. Formal opening of the mill is scheduled for July 23.

To provide a limited quantity of strip from sheets, a hot mill slitting line will be installed.

A cold-rolling sheet mill to complement the hot mill is to be ready for operation next January or February.

The new mills will put Pittsburgh Steel into the sheet business. The mills are part of a broad program of expansion and improvement by the company.

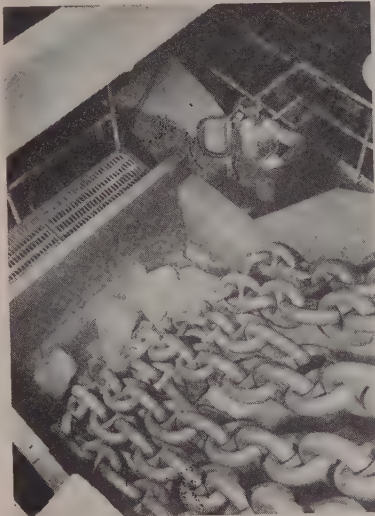
Demand for hot-rolled and cold-rolled carbon sheets remains strong, though the demand isn't as frenzied as it was some months ago. Biggest key as to how long the sheet demand will hold up is the automobile industry. It still evinces optimism over sales and production. There are indications that the appliance business, which had sagged, may be picking up. While appliance demand was off and appliances were being stored, producers did not ease their demand for steel.

United States Steel Products Division, United States Steel Corp. last week announced new prices on its line of steel drums and pails. The price revisions represent increases ranging from 6.5 per cent to 8 per cent. The new prices became effective June 25, and apply on all unshipped business on the division's books as well as on all new orders.

Boston—Until narrow cold carbon strip supply balances demand, and competitive factors return in distribution, the current range of prices will continue. Recent price advances were not uniform, with differences in basing points. This is notably so among nonintegrated producers.

Increases in quantity base and cost differences point toward more slitting, already representing a substantial volume of tonnage consumed in this area.

In addition to silicon sheets, some



Chains Regulate Speed

International Nickel Co. Inc., New York, installed massive crushers in its northern Ontario mines as part of its underground expansion program. The ore speed to crusher is regulated by seven chains with 110-pound links; total weight of 14½ tons

fourth quarter alloy and high tensile tonnage is being distributed. Hot and cold-rolled carbon sheet demand is strong with most users indicating fourth quarter requirements will approximate those in the third quarter, with improvement in procurement likely should automobile demand ease.

Philadelphia—Hot and cold-rolled carbon sheet demand continues to exceed supply. The same is true of certain specialties, notably electrical sheets and enameling stock. Galvanized sheets, however, are moving slowly. Sheet producers are beginning to open books for fourth quarter, most of them for the entire period.

Cleveland—Slowing down of manufacturing operations because of vacation suspensions will not have much impact on sheet and strip demand. Few requests for shipment holdups have been received by the mills and indications are most shops will continue to take in tonnage throughout the period of suspension.

Little relief in supply conditions is in prospect over third quarter. The period ended with the mills holding

substantial carryover from the second three months of the year and working off of this backlog will necessarily mean new tonnage will have to wait position in rolling schedules.

Most market observers think there will be a carryover from third to fourth quarter, and while there are some prospects that demand pressure will ease somewhat in the closing months of the year, many sellers say, barring unforeseen adverse developments, there will be no particular let-up in demand pressure over remainder of the year.

Cincinnati—Sheet and strip mills are checking for signs of a business change. Demand continues strong for sheet, but a few cutbacks have put mills on guard.

Chicago—Sheetmakers are expecting some diminution in demand now that it is certain output will suffer no loss from labor trouble and since higher prices are now generally in effect. As yet, however, signs of such easing are not developing. There have been no cancellations or requests for shipment delays.

Galvanized sheet supply is expected to remain tight through third quarter under impact of the grain bin program now being worked out and in which the government seems likely to seek assistance through some form of directive.

St. Louis—Sheet demand here remains high and steady, with no effect from the \$4 price rise. Fourth quarter allotments have been allocated to sales offices and there has been no difficulty finding takers. Demand from farm equipment manufacturers is holding up well.

Granite City Steel Co., Granite City, Ill., will start operation of its third new 300-ton open hearth in mid-July and expects to complete a two-year program of modernizing finishing equipment in fourth quarter. Allocations for that period were made on the basis of the new capacity.

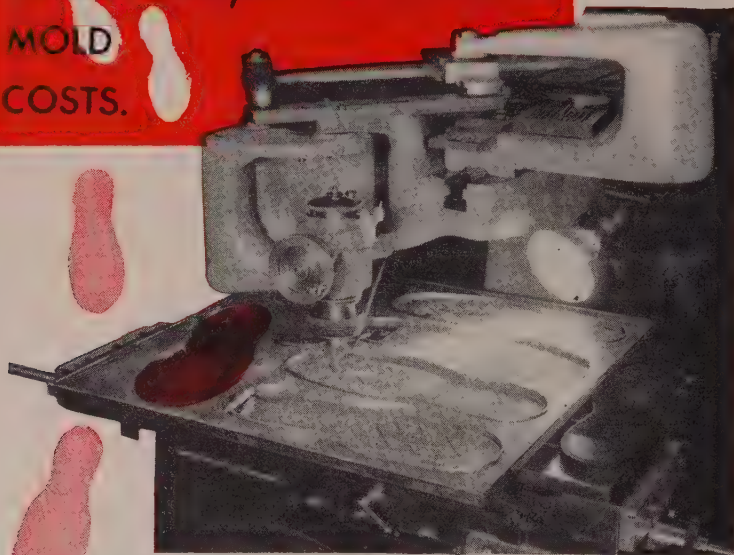
Birmingham—Production and demand for sheets still decrease. Continued diversification of regional industry may preclude the probability that supply and demand will be adjusted in the foreseeable future. Strip demand is less stringent.

Tool Steel . . .

Tool Steel Prices, Page 182

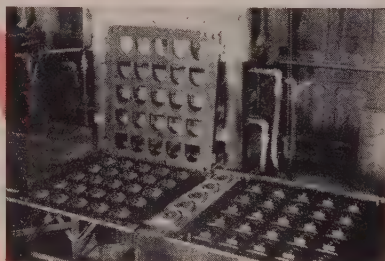
Philadelphia—Producers of tool steels are increasing prices 5 per cent on both base and extras. Drill rods are up about 5 per cent. Various other adjustments are being made.

GRO-CORD RUBBER CO. TAKES "Steps" TO LOWER MOLD COSTS.



SPEED CASE STEEL PLATE EASIER TO MACHINE

The Gro-Cord Rubber Co., Lima, Ohio, produces "puddle-proof" Neo-Crepe, Neo-Cork and Neo-Cord heels and soles of molded neoprene. They are widely used by manufacturers of footwear. Gro-Cord has speeded production and cut tool room costs by making their molds of Speed Case (X1515) low carbon, open hearth steel plate. Ease of machining has increased tool life nearly 200% — machining speeds and feeds have been increased up to 50%. Speed Case takes a "beautiful" finish — can be engraved more readily. Physical properties are such that no heat treatment is necessary in this instance — although many users praise the rapid, deep case which can be produced through several methods of case hardening. The Speed Steels — Speed Case, Speed Treat and Speed Alloy can probably cut your costs or improve your product — get the facts!



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Oakland-Dallas - Passaic County Steel Service, Inc., Paterson, N. J. - Peckover's Ltd.,
Montreal-Toronto - Peninsular Steel Co., Detroit, Mich. - Pidgeon-Thomas Iron Co., Mem-
phis, Tenn. - Horace T. Potts Co., Philadelphia-Baltimore-York, Pa.

Produced by W. J. Holliday & Co., Inc., Speed Steel Plate Division,
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Conversion Steel . . .

Chicago—Conversion steel is still a live topic for fourth quarter but definite commitments are yet to be made. Interest is confined to auto-makers, principally the larger ones, but there is enough caution to dictate a wait-and-see attitude.

One local steel mill which has engaged in sheet conversion where its facilities are not fully engaged with its own steel, reports it is sold out on cold-rolled conversion sheets for third quarter. Still available is room for a relatively small tonnage of hot-rolled sheets providing the steel furnished is slabs. Space for ingot conversion has been sold out for some time.

Steel Bars . . .

Bar Prices, Page 180

Cleveland—Barmakers are expected to open their books for fourth quarter shortly, but there is no indication that supply availability will be any easier in that period than at present. There was a substantial carryover from second to third quarter with the result much new business that ordinarily would be shipped in the summer months may have to be carried over into fourth quarter. This, of course, is predicated on the assumption there will be no substantial cancellation of orders or sharp contraction in general demand.

Military and other defense needs, as well as automotive requirements show no sign of easing off. Higher prices, recently announced, appear to be no deterrent to demand pressure, notably for the larger sizes.

Cincinnati — Supply and demand conditions in steel bars are unchanged. Larger sizes of both carbon and alloy bars are more difficult to obtain.

Boston—Carbon bar demand holds relatively high for hot-topped grades on which most mills are behind schedule, limited by capacity. Inventories are somewhat improved, notably in stock under 2-inch. Catchup in these smaller sizes is due to tonnage off converter mills. Most production from these units is under 2-inch.

Military needs account for steady and high volume of larger bars, both alloy and carbon, but over-all pressure from civilian users has eased. Textile mill equipment shops are buying well below normal volume. Wider range of alloy specifications is coming through, due to better supply of alloying elements, except nickel.

Imperial Knife Co., Providence, R. I., booked a contract for bayonets from Springfield Armory for \$1,858,-

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These Erie Steam Hammers are forging motor truck rear axle ring gears, upset in the die, at the plant of Ohio Forge and Machine Corporation, Cleveland. The gears weigh about 80 lbs. each. The engineering experience and craftsmanship built into Erie Hammers contribute much to the high quality of these gears. For more than 60 years Erie Hammers have been the choice of expert and hammer gangs in the world's leading forge shops. All parts in Erie Hammers subject to impact, anvil, frames, upper works are steel.

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758, with substantial tonnages of hot-rolled forged flats required.

New York—Some producers indicate they will be opening books or commercial tonnage for fourth quarter most any time now. They anticipate a carryover of at least three or four weeks at the end of the current quarter; and also practically capacity operations throughout the period, with possibly some tapering off at the flag end of the year.

Minimum delivered price here is now 4.771c per pound on 40,000 pound carlots. This is predicated on a new price of 4.15c Johnstown.

Philadelphia—One leading producer is opening books for hot-rolled bar tonnage for all of fourth quarter and certain others are expected to take similar action at this time. Still others are opening only for the first month of the final quarter. In virtually all cases there will be some third quarter carryover.

The minimum delivered Philadelphia price is now 4.602c on shipments in 40,000 pound carlots. This is based on a price of 4.15c Johnstown, plus a .552c freight rate, not including 3 per cent federal tax.

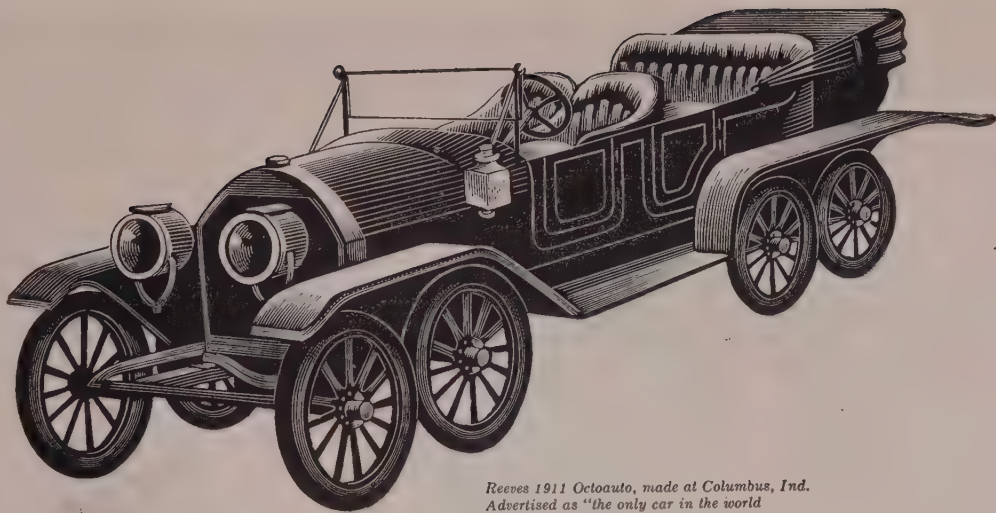
Wire . . .

Wire Prices, Page 182

Boston—Finished wire shipments this month will be off more than usual because of non-uniform vacation closings. Because of heavier deliveries during June, consumers have filled storage space and in some cases tonnage is still at mills, volume originally scheduled for shipment last month. Inventories are consequently high and some of this volume may be deferred until August or September.

New York—Manufacturers of cold-headed specialties can not get some specifications under 90 days, but wire demand pressure has eased on more products, notably upholstery spring wire for the furniture trade. Specialties for the automobile trade are active but in few cases shipments have been extended, but not canceled. Finished wire products affected are those on which inventories have become somewhat heavy, shipments having exceeded high consumption for some weeks.

Pittsburgh—Pressure is off all grades of manufacturers' wire, but third-quarter order books are full. A big factor in current demand is the automotive industry. Manufacturers' wire in strongest demand is the low carbon grades. On them, one producer is making delivery in 90 days. Shipments on high carbon wire are faster. Holding up notably well in demand is wire rod for redrawing and cold heading.



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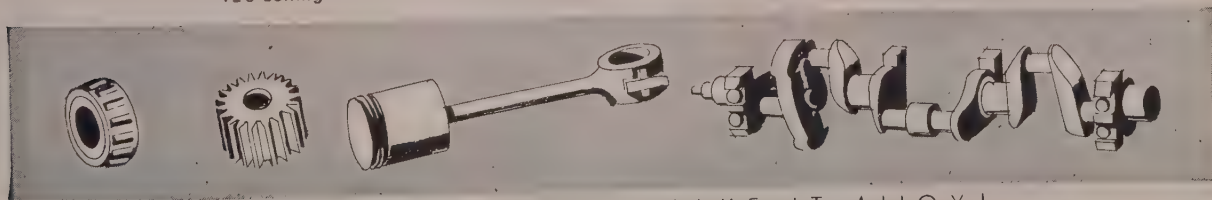
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Tubular Goods . . .

Tubular Goods Prices, Page 183

Cleveland—Leading tubular goods producers have adjusted their discount lists downward in line with the recent general increase in steel prices.

Latest price announcement comes from the Tubular Products Division, Babcock & Wilcox Co., of revisions covering seamless alloy and stainless, mechanical and pressure tubes produced at Beaver Falls, Pa. Revised prices were also announced for electric resistance welded boiler, condenser, and heat exchanger tubes produced at Alliance, O.

The new prices became effective with shipments June 25, and reflect increases in costs due to higher labor and raw materials charges.

Chicago — Nikoh Tube Co. announced, effective June 15, an increase of approximately 2 per cent in all prices of electric welded steel tubing, including all grades and quantities.

Plates . . .

Plate Prices, Page 180

Philadelphia—Most plate producers anticipate opening books for fourth quarter, or at least a part thereof, in the immediate future. They are under no compulsion, as they were under CMP, to open books 90 days in advance, but most, nevertheless, appear to be planning to enter orders almost that far ahead. Practically all are allowing for carryover at the end of this quarter of at least two weeks, if not longer.

Lukens Steel Co., Coatesville, Pa., which is standing firm on its current carbon and alloy steel plate base prices, increased the base price of its clad steels about 5 per cent, effective June 29; and the base price of all flanged products about 10 per cent.

Boston—Lighter gages of narrow plates are tightening in supply because of production losses on sheet-strip mills. Several of the latter have returned to rolling sheets. Medium sizes are somewhat more readily available. Tank shops are operating with small inventories.

Large expansion of oil storage space takes heavy tonnages of plates but this program is probably past peak. Contract has been placed for one of the largest oil tanks, 1000 tons being required for the unit at New Haven, Conn.

Pullman-Standard Car Mfg. Co. at Worcester, Mass., has taken a contract for gun mounts, worth \$1,165,415.

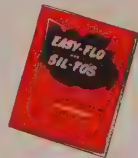
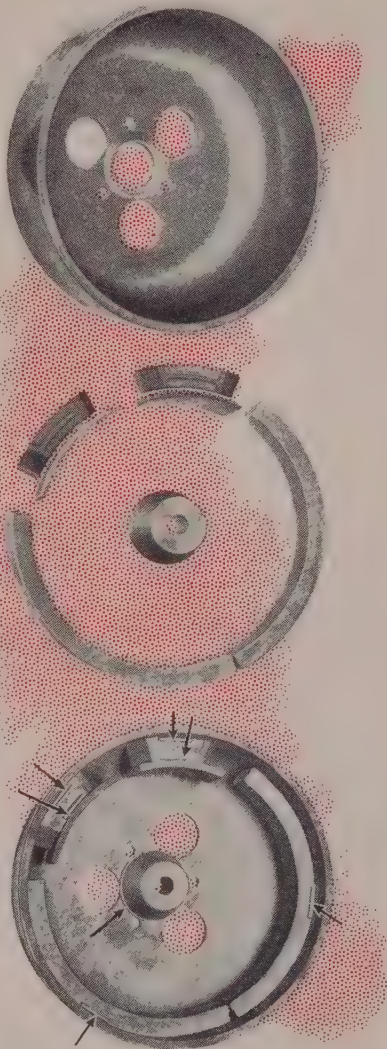
Birmingham — Although plate output remains virtually at capacity in

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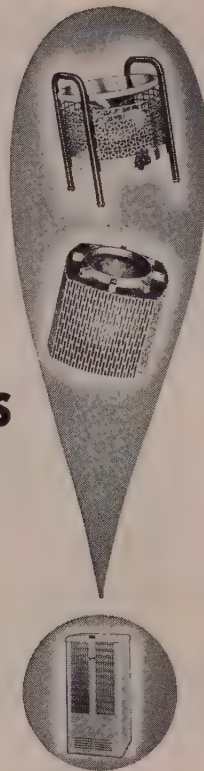
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this section, it still trails demand by a noticeable margin. Inadequacy of plate supply has resulted in reduced production schedules in several lines, notably carbuilding at Bessemer. A high proportion of the district's output of plates still goes into pipe.

Seattle—Demand for plates continues strong, supplies extremely short and no immediate relief in sight. Last week 1700 tons for Hanford Works disposal tanks were placed with Consolidated Western Steel Corp., which also booked 1000 tons additional on a previous contract at the same project. Union Oil placed tonnage for tank additions at Edmonds, Wash.

Stainless Steel . . .

Stainless Steel Prices, Page 183

Washington, Pa.—The Jessop Steel Co. has advanced base prices on its stainless clad steels approximately 5 per cent, effective June 29.

Structural Shapes . . .

Structural Shape Prices, Page 180

New York—Bridge work remains outstanding, with the award of 6350 tons noted for two state thruway projects in Herkimer county, New York, and with 11,050 tons active for a state viaduct in Buffalo, on which Bates & Rogers, Chicago, general contractors, are low.

Structural bookings in May of 306,319 net tons were the heaviest so far and brought the total for the first five months up to 317,802 tons, compared with 1,089,330 in the corresponding period of 1952. May bookings compared with a revised figure of 305,175 tons for April. Actually they were the heaviest reported in 25 months.

May shipments amounted to 265,000 tons, against a revised figure of 262,722 tons in April. Total shipments for the first five months were 1,286,588 tons, against 1,235,077 tons in the corresponding period of 1952.

Backlogs of 2,178,918 tons as of the first of June were off slightly from a year ago, when the total was 2,263,443 tons.

Boston—District structural fabricating shops have been set back by strikes. Employees ask substantially more in base pay and extras than rates granted by larger shops.

Average backlog is between three and four months. Prospects for heavier bridge estimating during second half are good, including 6000 tons, new section Maine turnpike, mostly beam spans. Other expressway bridges will also come up for bids.

Group of RUEMELIN Fume Collectors Keeps Shop Clear of Welding Fumes



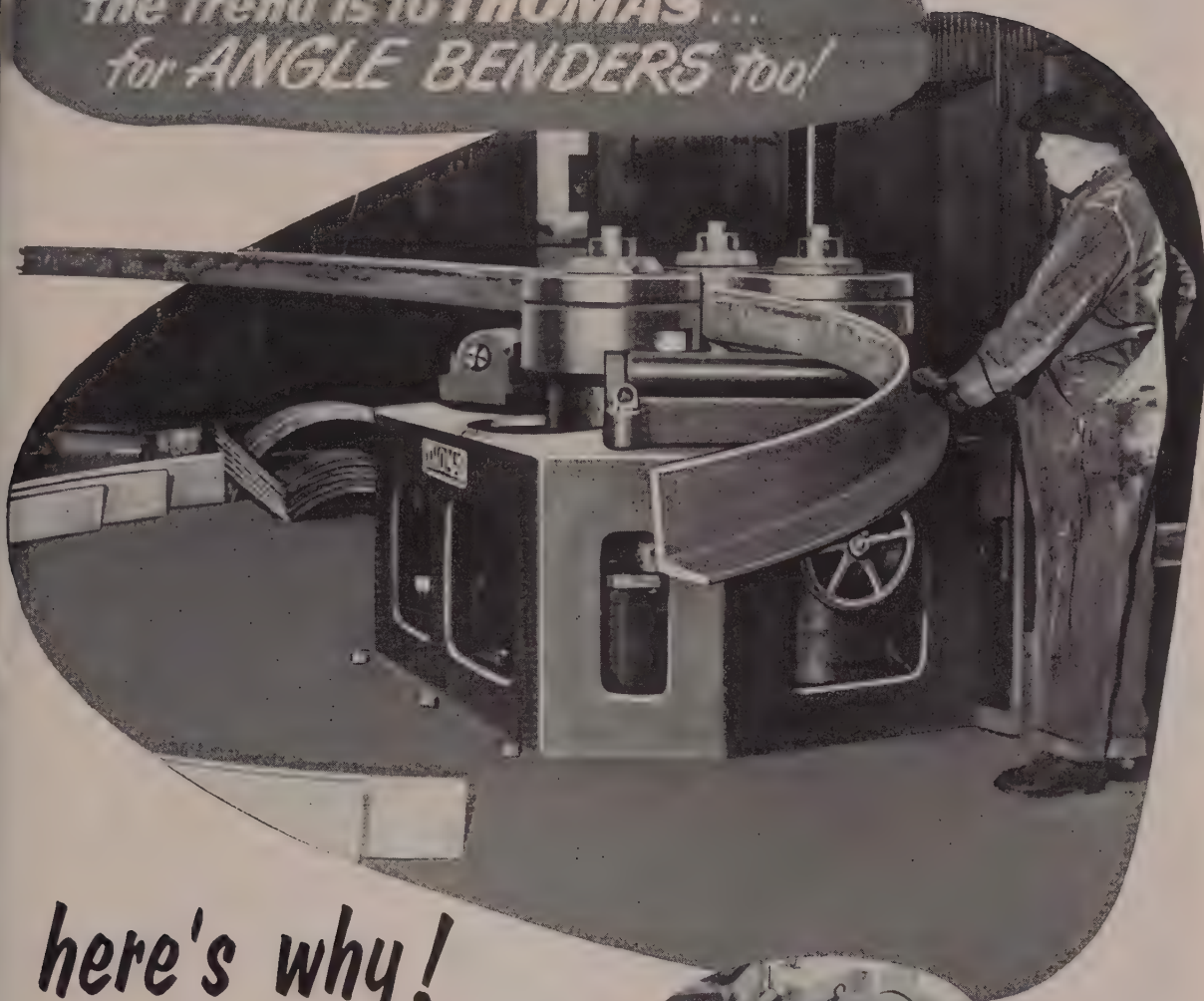
This well ventilated welding department is typical of hundreds of similar installations. Welding operators appreciate smoke and gas-free atmosphere. Thousands in service. Many repeat orders. Collecting fumes AT THE SOURCE with local exhaust hoods has proven most practical in operation. It is particularly helpful in winter months when doors and windows are closed. Write for Bulletin 37-D describing all types of Ruemelin Welding Fume Collectors.

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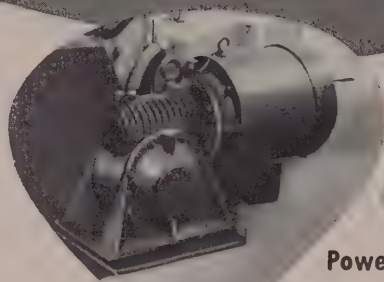
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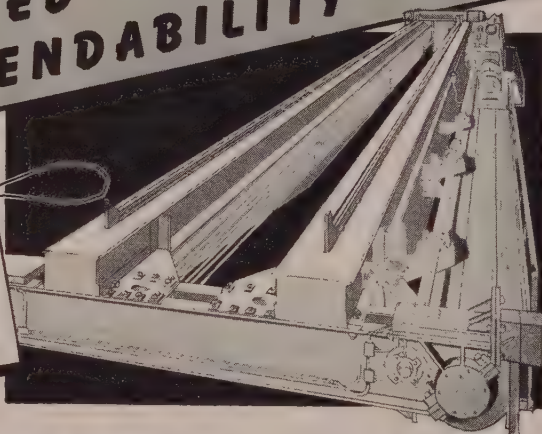
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New Haven railroad viaduct project, Bridgeport, Conn., has for the time being been abandoned.

Philadelphia—Except for bridge work, structural activity is spotty. There is little commercial demand and not much industrial inquiry. Small fabricating shops, unable to figure on much of the bridge work, are competing strongly on such small commercial and industrial jobs as are developing.

Fasteners . . .

Bolt, Nut, Rivet Prices, Page 183

Pittsburgh—General upward revision in industrial fastener prices averaging 10 per cent is in prospect. Several important producing interests already have issued new discount lists and others, still considering the subject, are expected to act within the next few days.

One of the leading interests, Pittsburgh Screw & Bolt Corp., sent its announcement to the trade June 29, its new discounts reflecting average increases of about 10 per cent though not falling uniformly over all the products, rather being selective in that prices for each product group are adjusted by the applicable increases in peculiar cost factors. The new discounts became effective with shipments July 1.

This is the first increase in fastener prices since early April. Since then steel product extras and base prices have been advanced. Further, many fastener producers are compelled to grant their employees the same general wage increase of 8.5 cents per hour accepted by steelworkers in the recent negotiations with the basic steel producing industry.

Tin Plate . . .

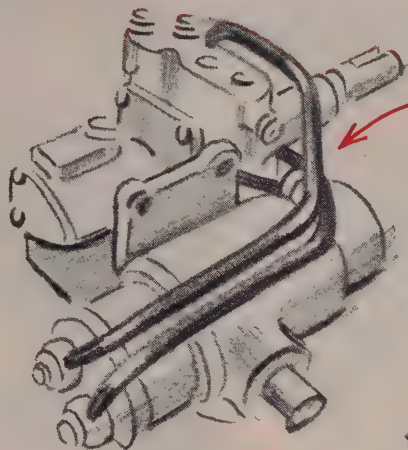
Tin Plate Prices, Page 181

Washington—April shipments of metal cans amounted to 301,665 tons and compared with the revised figure for March of 279,372 tons, and with a revised figure for April, 1952, of 287,223 tons, according to the Bureau of Census, Department of Commerce. Total for the first four months of this year was 1,102,718 tons, against 1,024,163 tons in the same period last year.

Food cans in April consumed 172,268 tons and non-food cans 129,397 tons. During the first four months 653,086 tons went into food cans, as compared with 169,129 in the same period of last year, when 449,632 tons went into non-food cans, against 405,034 tons.

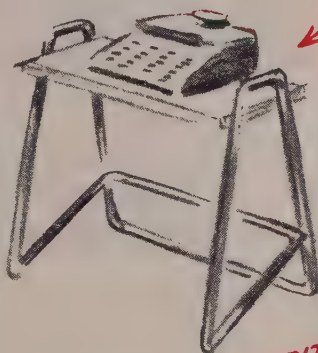
The 62,469 tons of fruits and vegetables (Please Turn to Page 202)

FROM *the Bundy Sketchbook*
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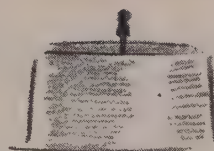
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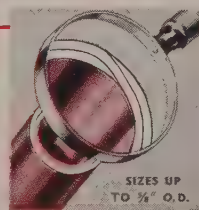
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How LINK-BELT Welded Steel Pulleys minimize shaft deflection

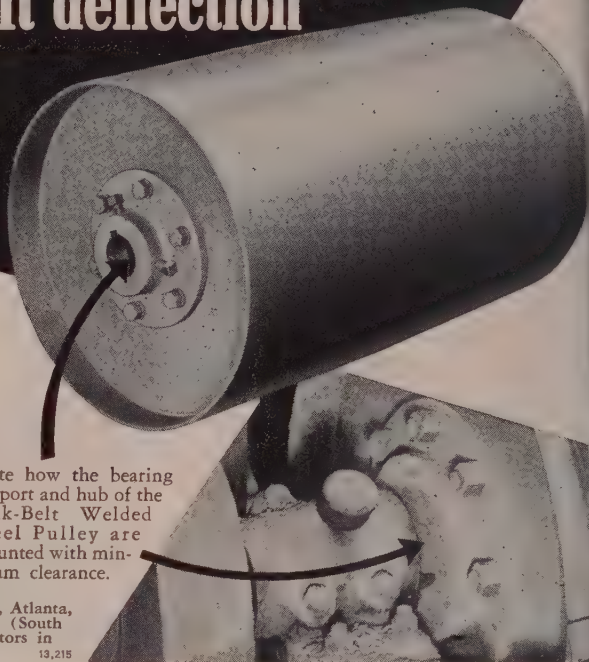
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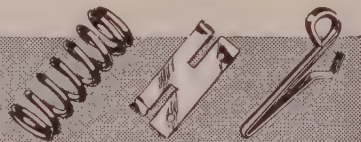
Note how the bearing support and hub of the Link-Belt Welded Steel Pulley are mounted with minimum clearance.



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WIRE FORMS

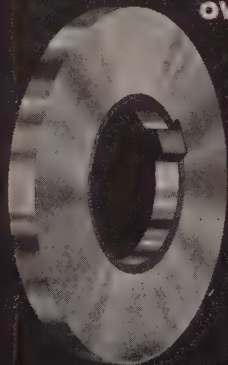


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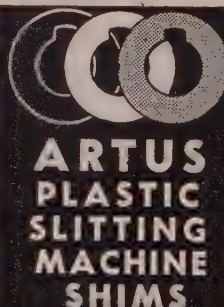
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(Mn 79-81%) Lump, \$208 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add \$2.60 for each 1% above 81%; subtract \$2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

Low-Carbon Ferromanganese, Regular Grade: (Mn 85-90%) Carload, lump, bulk, max. 0.07% C, 27.95¢ per lb of contained Mn, carload packed 28.7¢, ton lots 29.8¢, less ton 31.0¢. Delivered. Deduct 0.5¢ for max. 0.15% C grade from above prices, 1¢ for max. 0.30% C, 1.5¢ for max 0.50% C, and 4.5¢ for max 75% C—max 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P. 0.08% max). Add 0.5¢ to the above prices. Spot, add 0.25¢.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max.) Carload, lump, bulk 21.35¢ per lb of contained Mn, carload packed 22.1¢, ton lot 23.2¢, less ton 24.4¢. Delivered. Spot, add 0.25¢.

Manganese metal, 2" x D (Mn 96% min, Fe 2% max, Si 1% max, C 0.2% max): Carload, lump, bulk, 36.2¢ per lb of metal; packed, 36.95¢; ton lot 38.45¢; less ton lots 40.45¢. Delivered. Spot, add 2¢.

Electromanganese: Carload, 30¢; ton lots, 32¢; 250 to 1999 lb, 34¢. Premium for hydrogen-removed metal, 1.5¢ per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 11.4¢ per lb of alloy, carload packed, 12.15¢, ton lots 13.05¢, less ton 14.05¢. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2¢ from above prices. For 3% C grade, Si 12-14.5%, deduct 0.5¢ from above prices. Spot, add 0.25¢.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lots 2" x D, \$1.50 per lb of contained Ti; less ton \$1.55 (Ti 33-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lots \$1.35, less ton \$1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot add 5¢.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract \$177 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4.5%). Contract \$195 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l., lump, bulk 24.75¢ per lb of contained Cr, c.l. packed 25.85¢, ton lot 26.80¢, less ton 28.20¢. Delivered. Spot, add 0.25¢.

Low-Carbon Ferrochrome: (Cr 67-72%) Contract, carload, lump, bulk, max. 0.03% C 37.60¢ per lb contained Cr, 0.04% C 35.50¢, 0.06% C 34.50¢, 0.10% C 34.00¢, 0.15% C 33.75¢, 0.20% C 33.50¢, 0.50% C 33.25¢, 1% C 33.00¢, 1.50% C 32.85¢, 2% C 32.75¢. Carload packed add 1.1¢, ton lot 2.2¢, less ton add 3.9¢. Delivered. Spot, add 0.25¢.

Foundry Ferrochrome, High Carbon: (Cr 62-66%, C 5-7%) Contract, c.l. 8 M x D, bulk, 26.25¢ per lb of contained Cr, C.L., packed 27.15¢, ton 28.50¢, less ton 30.25¢. Delivered. Spot, add 0.25¢.

Foundry Ferrochrome, Low Carbon: (Cr. 50-54%, Si 23-32%, C 1.25% max.) Contract, carload, packed, 8 M x D, 18.35¢ per lb of alloy; ton lot 19.2¢; less ton lot, 20.4¢, delivered; spot, add 0.25¢.

Low-Carbon Ferrochrome Silicon: (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 25.75¢ per lb of contained chromium plus 12.4¢ per pound of contained silicon; 1" x down, bulk 25.90¢ per pound of contained chromium plus 12.60¢ per pound of contained silicon. F.o.b. plant; freight allowed to destination.

Ferrochrome Silicon, No. 2: (Cr 36-39%, Si 26-39%, Al 7-9%, C 0.05% max.) 25.75¢ per lb of contained silicon plus 16.4¢ per lb of contained silicon plus aluminum 3" x down, delivered.

Chromium Metal: (Min 97% Cr and 1% Fe) contract carload, 1" x D; packed, max 0.50% ton lots \$1.14, less ton \$1.16. Delivered. Spot, add 5¢; prices on 0.10 per cent carbon grade, C grade, \$1.12 per lb of contained chromium, up 4¢.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 20.0¢ per lb of alloy, carload packed 20.8¢, ton lot 22.3¢, less ton 23.3¢. Delivered. Spot add 0.25¢.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 10.0¢ per lb of alloy, carload packed 20.2¢, ton lot 22.1¢, less ton 23.6¢. Deld. Spot add 0.25¢.

SILICON ALLOYS

25-30% Ferrosilicon: Contract, carload, lump, bulk, 20.0¢ per lb of contained Si, packed 21.40¢; ton lot 22.50¢, f.o.b. Niagara Falls, freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 12.40¢ per lb of contained Si, carload packed 14.0¢, ton lot 15.45¢, less ton 17.1¢. Delivered. Spot, add 0.45¢.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3¢ to 50% ferrosilicon prices.

75% Ferrosilicon: Contract, carload, lump, bulk, 14.3¢ per lb of contained Si, carload packed 15.6¢, ton lot 16.75¢, less ton 18.0¢. Delivered. Spot, add 0.8¢.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 17.0¢ per lb of contained Si, carload packed 18.2¢, ton lot 19.15¢, less ton 20.2¢. Delivered. Spot, add 0.25¢.

Silicon Metal: (Min 97% Si and 1% max Fe) C.l. lump, bulk, regular 18.5¢ per lb of Si, c.l. packed 19.7¢, ton lot 20.6¢, less ton 21.6¢. Add 0.5¢ for max. 0.10% calcium grade. Deduct 0.5¢ for max 2% Fe grade analyzing min 96% Si. Spot, add 0.25¢.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe) Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.90¢ per lb of alloy, ton lots packed 11.30¢, 20 to 1999 lb 11.65¢, smaller lots 12.15¢.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 30-43%, Fe 40-45%, C 0.20% max.) Contract, c.l. lump bulk 7.0¢ per lb of alloy, c.l. packed 7.75¢, ton lot 8.5¢, less ton 9.35¢. Delivered. Spot, add 0.25¢.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.) Contract, carload, lump, packed 20.25¢ per lb of alloy, ton lot 21¢, less ton 22.25¢ Freight allowed. Spot add 0.25¢.

VANADIUM ALLOYS

Ferrovandium: Open-hearth Grade (V 35-55%, Si 8-12% max, C 3-3.5% max). Contract, any quantity, \$3.10 per lb of contained V. Delivered. Spot, add 10¢ **Crucible-Special Grades** (V 35-55%, Si 2-3.5% max, C 0.5-1% max), \$3.20. **Primos and High Speed Grades** (V 35-55%, Si 1.50% max, C 0.20% max) \$3.30.

Grainal: Vanadium Grainal No. 1, \$1 per lb; No. 6, 68¢; No. 79, 50¢, freight allowed.

Vanadium Oxide: Contract, less carload lots \$1.23 per lb contained V₂O₅, freight allowed. Spot, add 5¢.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%), 10,000 lb W or more, \$4.35 per lb of contained W; 2000 lb W to 10,000 lb W, \$4.45; less than 2000 lb W, \$4.57, f.o.b. Niagara Falls, N. Y.

BORON ALLOYS

Ferroboron: (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more, 1" x D, \$1.20 per lb of alloy. Less than 100 lb \$1.30. Delivered, spot, add 5¢, F.o.b. Washington, Pa., prices, 100 lb and over, are as follows: Grade A (10-14% B) 75¢ per pound; Grade B (14-18% B) \$1.20; Grade C (19% min B) \$1.50.

Borosil: (3 to 4% B, 40 to 45% Si). \$5.25 per lb contained B, delivered to destination.

Bortam: (B 1.5-1.9%). Ton lots, 45¢ per lb; smaller lots, 50¢ per lb.

Carbotam: (B 1 to 2%) contract, lump, carloads 9.50¢ per lb, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3½ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 14.58¢ per lb of briquet, carload packed 15.2¢, ton 16.0¢, less ton 16.9¢ Deld. Add 0.25¢ for notching. Spot, add 0.25¢.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk 12.45¢ per lb of briquet, c.l. packaged 13.25¢, ton lot 14.05¢, less ton 14.9¢. Delivered. Add 0.25¢ for notching. Spot, add 0.25¢.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 12.65¢, per lb of briquet, c.l. packed 13.45¢, ton lot 14.25¢, less ton 15.15¢. Delivered. Add 0.25¢ for notching. Spot, add 0.25¢.

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 6.95¢ per lb of briquet, c.l. packed 7.75¢, ton lot 8.55¢, less ton 9.45¢. Delivered. Spot, add 0.25¢.

(Small size—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 7.1¢, c.l. packed 7.9¢, ton lot 8.7¢, less ton 9.6¢. Delivered. Add 0.25¢ for notching, small size only. Spot, add 0.25¢.

Molybdenum-Oxide Briquets: (Containing 2½ lb of Mo each) \$1.14 per pound of Mo contained, f.o.b. Langloeth, Pa.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 56-60%, Si 8% max, C 0.4% max). Contract, ton lot, 2" x D, \$4.90 per lb of contained Cb, less ton \$4.95. Delivered. Spot, add 10¢.

Ferrotantalum-Columbium: (Cb 40% approx. Ta 20% approx, and Cb and Ta 60% min, C 0.30% max) ton lots, 2" x D, \$3.75 per lb of contained Cb plus Ta, deld.; less ton lots \$3.80.

Silicaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 45¢ per lb of alloy, ton lot 47¢, less ton 49¢. Delivered.

SMZ Alloy: (Si 80-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Contract, carload, packed, ¼" x 12 M, 17.5¢ per lb of alloy, ton lots 18.25¢, less ton 19.5¢. Deld. Spot, add 0.25¢.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 17.50¢ per lb of alloy; ton lots 18.50¢; less ton lots 20¢, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed 15¢ per lb of alloy; ton lots 16.50¢; less ton lots 17.75¢, f.o.b., Niagara Falls; freight allowed to St. Louis.

Simanal: (Approx. 20% each Si, Mn, Al; bal. Fe) Lump, carload, bulk 14.50¢, packed 15.50¢; ton lots, packed, 15.75¢; less ton lots, packed, 16.25¢ per lb of alloy, delivered to destination within United States.

Ferrophosphorus: (23-25% based on 24% P content with unitage of \$3 for each 1% of P above or below the base); carloads, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., \$65 per gross ton.

Ferronomolybdenum: (55-75%). Per lb contained Mo f.o.b. Langloeth, \$1.32 in all sizes except powdered which is \$1.41; Washington, Pa., furnace, any quantity \$1.32.

Technical Molybdenic-Oxide: Per lb, contained Mo, f.o.b. Langloeth, Pa., \$1.14 in cans; in bags, \$1.13, f.o.b. Langloeth, Pa.; Washington, Pa., \$1.13.



ELECTRIC FURNACE STEEL CASTINGS ARE FOUNDRY ENGINEERED

Regardless of the type of product you make — if you are interested in strength, toughness, uniform structure, resistance to fatigue, long life, lower machining and lower assembly costs — you'll be interested in C Steel Castings. The point is that they are sound, clean, true to pattern castings that by alloy and heat treating possess an almost unlimited range of mechanical properties.

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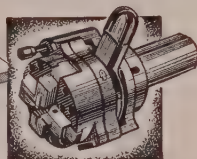
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for accuracy and straightness of threads, low chaser costs, less downtime, more pieces per day.

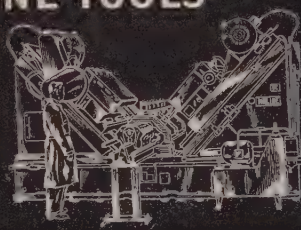


THE EASTERN MACHINE SCREW CORP., 22-42 Barclay Street, New Haven, Conn.
Pacific Coast Representative: A. C. Berbringer, 334 N. San Pedro St., Los Angeles, California. Canada: F. F. Barber Machinery Co., Toronto, Canada.

SINCE 1901 MOLINE "Hole-Hog" SPECIALLY DESIGNED MACHINE TOOLS

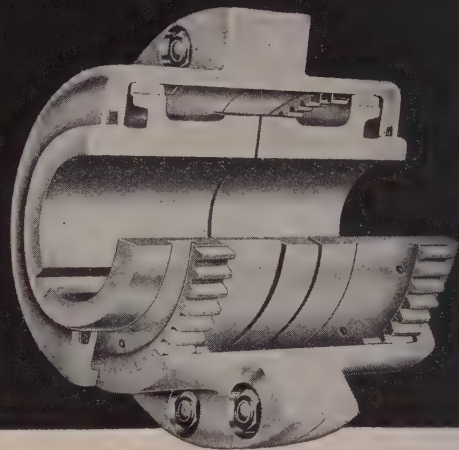
have cut production costs for American Industry.

DRILLING • BORING
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Boring V-8 Engine Cylinders

POOLE



A COPY OF CATALOG GIVING FULL DESCRIPTION AND ENGINEERING DATA SENT UPON REQUEST.

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POOLE FOUNDRY & MACHINE COMPANY

WOODBERRY, BALTIMORE, MD.

THE BELMONT IRON WORKS

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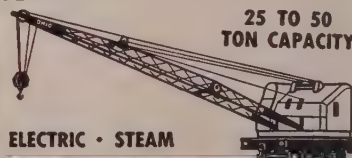
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WHEELING STEEL CORPORATION WHEELING, WEST VIRGINIA

COP-R-LOY PIPE-SHEETS

Ductillite

THE MODERN TIN PLATE

LA BELLE CUT NAILS



STEEL

ORES—COKE—REFRACTORIES

Prices as reported to STEEL; changes shown in Italic.

ORES

Lake Superior Iron Ore

(Prices effective July 1, 1953, and thereafter; gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)

Old range bessemer	\$10.30
Old range nonbessemer	10.15
Mesabi bessemer	10.05
Mesabi nonbessemer	9.90
Open-hearth lump	11.15
High phosphorus	9.90

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect on June 24, 1953, and increases or decreases after such date are for buyer's account.

Eastern Local Iron Ore

Cents per unit del. E. Pa.

Foundry and basic 56-62% concentrates contract	17.00-18.00
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Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot	nom.
Long-term contract	22.00
North African hematites (spot)	24.00-26.00
Brazilian iron ore, 68-69% (spot)	25.00

Tungsten Ore

Net ton unit, duty paid

Foreign wolframite and scheelite, per net ton unit	\$55.00
Domestic scheelite, mine	63.00

Manganese Ore

Manganese, 48% nearby, \$1.18-1.21 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 90-93c.

Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African

48% 2.8:1	\$40.00-\$42.00
48% 3:1	44.00-46.00
48% no ratio	32.00-34.00

South African Transvaal

44% no ratio	\$27.00-28.00
48% no ratio	34.00-35.00

Brazilian

44% 2.5:1 lump	nom. \$32
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Domestic

(Rail nearest seller)

48% 3:1	\$39.00
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Molybdenum

Sulphide concentrates per lb. molybdenum content, mines	\$1.00
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REFRACTORIES

Fire Clay Brick

High-Heat Duty: Pueblo, Colo., \$89.00; Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lochhaven, Lumber, Orviston, West Decatur, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, O., Ottawa, Ill., Stevens Pottery, Ga., Woodbridge, N. J., \$99.30; Salina, Pa., \$104.55; Niles, O., \$109; Los Angeles, Pittsburgh, Calif., \$132.30.

Silica Brick

Standard: Alexandria, Claysburg, Mt. Union, Sprout, Pa., Ensley, Ala., Portsmouth, O., \$99.30; Hays, Pa., \$105.10; Niles, O., \$107; E. Chicago, Ind., Joliet, Rockdale, Ill., \$109.70; Cutler, Utah, \$116.55; Los Angeles, \$122.85.

Insulating Fire Brick

2300° F: Massillon, O., \$178.50; Clearfield, Pa., \$179.55; Augusta, Ga., Beaver Falls, Zelenople, Pa., Mexico, Mo., \$186.90.

Ladle Brick

Dry Pressed: Bessemer, Ala., \$64.60; Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Pa., Wells-ville, O., \$69.30; Mexico, Mo., \$73.50; Clearfield, Pa., Portsmouth, O., \$83; Perla, Ark., \$92.40; Los Angeles, \$110.25; Pittsburgh, Calif., \$111.30.

Sleeves

Reesdale, Pa., \$127; Johnstown, Pa., \$127.30; Clearfield, Pa., \$135; St. Louis, \$138; Athens, Tex., \$140.90.

Nozzles

Reesdale, Pa., \$203.20; Johnstown, Pa., \$208.40; Clearfield, Pa., \$219.45; St. Louis, \$224.65; Athens, Tex., \$225.20.

Runners

Reesdale, Pa., \$158.20; Johnstown, Pa., \$161.70; Clearfield, Pa., \$168.60; St. Louis, \$170.30; Athens, Tex., \$174.40.

High-Alumina Brick

50 Per Cent: Clearfield, Pa., St. Louis, Mexico, Mo., \$166.30; Danville, Ill., \$169.30.
60 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$210.20; Danville, Ill., \$213.20.
70 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$244.85; Danville, Ill., \$247.85; Clearfield, Pa., \$252.

METALLURGICAL COKE

Price per net ton

Beehive Ovens

Connellsville, furnace	\$14.50-15.00
Connellsville, foundry	16.50-17.00
New River foundry	20.80
Wise county foundry	15.95
Wise county, furnace	15.20

Oven Foundry Coke

Kearney, N. J. ovens	\$24.00
Everett, Mass., ovens	
New England, del.	*26.00
Chicago ovens	24.50
Chicago, del.	26.00
Terre Haute, ovens	24.05
Milwaukee, ovens	25.25
Indianapolis, ovens	24.25
Chicago, del.	23.12
Cincinnati, del.	25.85
Painesville, O., ovens	25.50
Cleveland, del.	27.43
Erie, Pa., ovens	25.00
Birmingham, ovens	21.65
Cincinnati, del.	26.58
LoneStar, Tex. ovens	13.50
Philadelphia, ovens	23.95
Swedeland, Pa., ovens	23.85
St. Louis, ovens	
St. Louis, del.	26.00
St. Paul, ovens	23.75
Portsmouth, O., ovens	24.00
Cincinnati, del.	26.62
Detroit, ovens	25.50
Detroit, del.	26.50
Buffalo, del.	28.08
Flint, del.	28.23
Pontiac, del.	27.06
Saginaw, del.	28.58

*Or within \$4.55 freight zone from works.

COAL CHEMICALS

Spot, cents per gallon, ovens

Pure benzol	36.00
Toluol, one deg.	30.00-33.00
Industrial xylol	30.00-33.50

Per ton, bulk, ovens

Sulphate of ammonia	\$44-45
Birmingham area	\$49.50

Cents per pound, ovens

Phenol, 40 (carlots, nonreturnable drums)	17.25
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FLUORSPAR

Metallurgical grade, f.o.b. shipping point, in Ill., Ky., net tons, carloads, effective CaF₂ content 72.5%, \$44; 70%, \$42.50; 60%, \$38. Imported, net ton, duty paid, metallurgical grade, \$35-\$36.

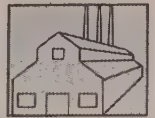
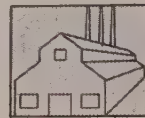
ELECTRODES

(Threaded, with nipples, unboxed f.o.b. plant)

GRAPHITE

Diam.	Inches	Length	Cents per lb
17, 18, 20		60, 72	17.85
8 to 16		48, 60, 72	17.85
7		48, 60	19.57
6		48, 60	20.95
CARBON			
35, 40		110	8.03
30		65, 84, 110	8.03
24		72 to 104	8.03
17 to 20		34, 90	8.03

4 out of 5



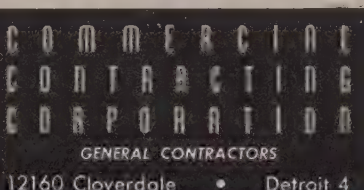
SINCE 1946, five major press plants have been built for the automotive industry to meet the increased demand for passenger cars and trucks.

Commercial Contracting Corporation was selected to install all machinery and equipment in four of these five plants.

Currently, CCC crews are beginning to place the first shipments of more than 1,000 pieces of equipment to be housed in the sixth such huge press plant constructed in the United States since the War's end.

Erecting heavy presses and other machinery is an important part of our business.

Other CCC services, provided individually or under one PACKAGE contract, include: General Construction, Building Alterations, Demolition, Foundations, Machinery Moving, Crane and Conveyor Installing, and Steel Fabricating.



Tin Plate . . .

(Continued from Page 196)

table cans shipped during April were 13 per cent above the March total, but 12 per cent below shipments in April, 1952. In the non-food category, beer cans took a notable spurt, accounting for 52,986 tons, against 43,924 tons in the preceding month and 45,905 tons in April a year ago.

Pig Iron . . .

Pig Iron Prices, Page 176

Pittsburgh—Although demand for merchant pig iron has eased further the last 60 days, producers here followed the June 26 move of Interlake Iron Corp. and raised prices \$1.50 a gross ton.

New prices are: Basic, \$56; No. 2 foundry, \$56.50; malleable, \$56.50; bessemer, \$57; and intermediate low phosphorus, \$61.

Latest decline in demand for merchant iron is attributed partially to use of substitutes for cast iron products in the lowest priced houses being built today. These houses comprise a larger proportion of housing construction than they did a year or two ago.

One of the big supports to merchant iron demand today is produc-

tion of steel ingot molds. The ingot mold business is good because of the steel industry expansion and high rate of operations.

A new outlet for merchant iron is expected to come from production of ductile iron. Licenses to make ductile iron are being obtained throughout the country, and in the Pittsburgh district several large interests are getting them. Iron going into ductile iron must have a low phosphorus content as well as absence of various other elements.

Because of light business, a three-week vacation is currently general in the foundry business. Nevertheless, foundries have not cut back on their current orders for iron but have asked that shipments be delayed until they resume work. Consequently, some iron producers will pile iron until then.

Cleveland—Merchant pig iron prices have been advanced here \$1.50 per ton by all leading sellers following initial action June 26 by Interlake Iron Corp. This is the first change in pig iron quotations in almost a year and follows the increase in iron ore prices just announced effective July 1 for the remainder of the year.

No particular increase in consumer resistance to the higher iron prices is anticipated though demand has been

tending toward the soft side for some time past.

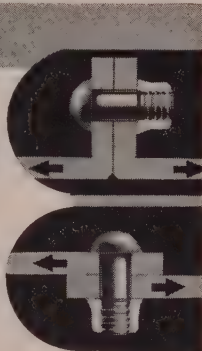
Currently, demand pressure is off the market with many foundries down or on a curtailed basis for vacations. Some requests for shipment deferments have been received by the furnaces but indications are deliveries will be resumed on former schedules before mid-month. No surplus stocks are reported in this area despite spotty foundry operations. The foundries have been inclined to order conservatively for inventory.

New York—With a large percentage of district gray iron shops down this week for vacations, the movement of gray iron is probably at low ebb for the year. Next week will also see a light movement for the same reason although the trend from then on should be on the upside throughout the remainder of July, with a leveling off in August and a return to a more normal rate of operation early in September.

St. Louis—Pig iron prices were boosted \$1.50, effective July 1, by Granite City Steel's blast furnaces. Basic pig iron went to \$57.90; foundry to \$58.40 and malleable to \$58.90. Both stacks currently are on basic, with ample foundry iron on the ground to meet anticipated needs.

The furnaces, which supply nearly

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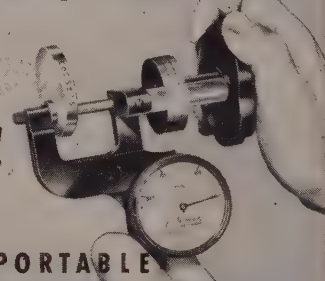
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0 per cent of this area's consumption, are still allocating to customers, most of whom are in comfortable position.

Buffalo—The blast furnace operating rate slipped six points to 88 per cent of capacity. Tonawanda Iron Division of American Radiator & Standard Sanitary Corp. shut down its only furnace for relining at North Tonawanda, N. Y. Merchant iron sellers report no change in the general market. Demand is absorbing production.

Philadelphia—Higher pig iron prices in the Midwest, amounting to about \$1.50 per gross ton, were followed by producers on the Eastern Seaboard. Shipments of pig iron are at low ebb as a result of widespread suspensions at foundries for mass vacations.

Cincinnati — Pig iron business is normal except for the continued shortage of silvery pig iron. Globe Iron Co., Jackson, O., has been shipping since June 7 after its long strike, but production is not high enough to fill all demands.

Jackson Iron & Steel Co., Jackson, is relining its furnaces before returning to production.

Chicago—Many foundries in this area are about to begin vacation closings or will do so during the next few weeks. Generally, however, they are taking their full iron quotas rather than trimming requirements to match reduced melting. Most observers feel foundry activity in the next few months will hinge on strength of the automotive situation.

Birmingham — Considerable "softness" is evident in the current pig iron market, according to authoritative sources here. Merchant iron melters are accepting nearly all business offered and are not optimistic over prospects for remainder of the year. Chiefly responsible are slower demand for pressure and soil pipe and decreased production.

Scrap . . .

Scrap Prices, Page 204

New York—Brokers advanced buying prices on No. 1 heavy melting steel to \$36 to \$37. Offerings hold unchanged on No. 2 heavy melting at \$30 to \$31.

No. 2 bundles are in somewhat better demand. Brokers are offering \$27 to \$28. Low phos is higher at \$39 to \$40 and shovel turnings at \$23 to \$24.

There is no price change in machine shop turnings or mixed borings and short turnings. No. 1 cupola is easier although brokers' prices are unchanged at \$32 to \$34. Buying prices on unstripped motor blocks also are steady.

Most trading now is in major open-hearth grades. Various consumers who had been drawing on inventories for part of their current requirements are now not only maintaining them but building them up slightly.

Demand increases for imported hot and cold sheets. Consumers, including several of the larger ones in this district, are turning to foreign sellers to round out their requirements. Less concern is being felt about the more extended future needs. There is less interest in conversion for fourth quarter.

Buffalo — Despite talk the scrap market is weakening, bullish tendencies have developed, a leading buyer placing orders within prevailing price ranges.

While receipts from the eastern seaboard via canal continue heavy, surprise is expressed over the small volume tonnage from upper lake points. The cast iron market is still somewhat weak.

Pittsburgh—Prices of steelmaking grades of scrap advanced last week on the basis of buying by Jones & (Please Turn to Page 206)

QUANTITY
PRODUCTION
OF
GREY IRON
CASTINGS

ONE OF THE
NATION'S LARGEST
AND MOST MODERN
PRODUCTION
FOUNDRIES

ESTABLISHED 1866
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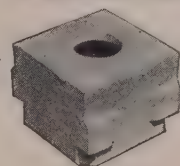
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not welded—of mild carbon steel, heat-treated,
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Integral washer and nut. Sizes: up to 30". Typical
direct prices for 10" lengths: 1/2"—\$1.36; 3/4"—\$1.36;
1"—\$1.58; 1 1/4"—\$1.89. Write for price list.

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IRON AND STEEL SCRAP

Consumer prices, per gross ton, except as otherwise noted, including broker's commissions, as reported to STEEL. Changes shown in italics.

STEELMAKING SCRAP
COMPOSITE

July 2	\$43.17
June 25	40.50
June avg.	40.50
July 1952	42.60
July 1948	41.43

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

PITTSBURGH

(Delivered consumer plant)

No. 1 heavy melting....	44.00-45.00
No. 2 heavy melting....	41.00-42.00
No. 1 bundles	44.00-45.00
No. 2 bundles	39.00-40.00
No. 1 busheling	44.00-45.00
Machine shop turnings ..	26.00-27.00
Mixed borings, turnings ..	26.00-27.00
Short shovel turnings....	31.00-32.00
Cast iron borings	30.00-31.00
Cut structurals	48.00-49.00
Heavy turnings	40.00-41.00
Punchings & plate scrap ..	48.00-49.00
Electric furnace bundles ..	46.00-47.00

Cast Iron Grades

No. 1 cupola	42.00-43.00
Charging box cast	42.00-43.00
Heavy breakable cast	40.00-41.00
Unstripped motor blocks ..	35.00-36.00
No. 1 machinery cast....	49.00-50.00

Railroad Scrap

No. 1 R.R. heavy melt....	46.00-47.00
Rails, 2-ft. and under....	53.00-54.00
Rails, 18-in. and under....	54.00-55.00
Rails, random lengths....	49.00-50.00
Railroad specialties	51.50-52.50

CLEVELAND

(Delivered consumer plant)

No. 1 heavy melting....	43.00-44.00
No. 2 heavy melting....	39.00-40.00
No. 1 bundles	43.00-44.00
No. 2 bundles	37.00-38.00
No. 1 busheling	43.00-44.00
Machine shop turnings ..	24.00-25.00
Mixed borings, turnings ..	25.00-26.00
Short shovel turnings....	25.00-26.00
Cast iron borings	28.00-29.00
Low phos.	46.00-47.00
Alloy free, short shovel ..	31.00-32.00
Electric furnace bundles ..	45.00-46.00

Cast Iron Grades

No. 1 cupola	45.00-46.00
Charging box cast	44.00-45.00
Stove plate	43.00-44.00
Heavy breakable cast	38.00-39.00
Unstripped motor blocks ..	27.00-28.00
Brake shoes	35.00-36.00
Clean auto cast	46.00-47.00
No. 1 wheels	40.00-41.00
Burnt cast	35.00-36.00
Drop broken machinery ..	48.00-49.00

Railroad Scrap

No. 1 R.R. heavy melt....	46.00-47.00
R.R. Malleable	49.00-50.00
Rails, 3-ft. and under....	52.00-53.00
Rails, 18-in. and under....	55.00-56.00
Rails, random lengths....	48.00-49.00
Cast steel	50.00-51.00
Railroad specialties	52.00-53.00
Uncut tires	51.00-52.00
Angles, splice bars	52.00-53.00
Rails, rerolling	53.00-54.00

YOUNGSTOWN

(Delivered consumer plant)

No. 1 heavy melting....	45.00-46.00
No. 2 heavy melting....	42.00-43.00
No. 1 bundles	45.00-46.00
No. 2 bundles	40.00-41.00
Machine shop turnings ..	26.00-27.00

Short shovel turnings. 31.00-32.00 CHICAGO

Cast iron borings	31.00-32.00
Low phos.	47.00-48.00
Electric furnace bundles ..	45.00-46.00

Railroad Scrap

No. 1 R.R. heavy melt....	47.00-48.00
---------------------------	-------------

PHILADELPHIA

(Delivered consumer plant)

No. 1 heavy melting	43.00-44.00
No. 2 heavy melting	39.00
No. 1 bundles	43.00-44.00
No. 2 bundles	34.00
No. 1 busheling	43.00-44.00
Machine shop turnings ..	28.00
Mixed borings, turnings ..	32.00
Short shovel turnings....	34.00
Structurals & Plate	45.00-46.00
Heavy turnings	41.00-42.00
Couplers, springs,	50.00
wheels	

Cast Iron Grades

No. 1 cupola	38.00-39.00
Charging box cast	40.00
Heavy breakable cast....	43.00
Unstripped motor blocks ..	29.00
Drop broken machinery ..	47.00-48.00

NEW YORK

(Brokers' Buying Prices)

No. 1 heavy melting....	36.00-37.00
No. 2 heavy melting....	30.00-31.00
No. 2 bundles	27.00-28.00
Machine shop turnings ..	20.00
Mixed borings, short	22.00-23.00
turnings	
Low phos. (structural & ..	39.00-40.00
plate)	
Shovel turnings	23.00-24.00

Cast Iron Grades

No. 1 cupola	32.00-34.00
Unstripped motor blocks ..	22.50-23.00

DETROIT

No. 1 heavy melting....	33.00-34.00
No. 2 heavy melting....	28.00-29.00
No. 1 bundles	37.00-38.00
No. 2 bundles	27.00-28.00
No. 1 busheling	35.50-36.50
Machine shop turnings ..	16.00-17.00
Mixed borings, turnings ..	16.00-17.00
Short shovel turnings....	19.00-20.00
Punchings & plate scrap ..	40.00-41.00

Cast Iron Grades

No. 1 cupola	43.00
Charging box cast	35.00-36.00
Stove plate	35.00-36.00
Heavy breakable	29.00-30.00
Unstripped motor blocks ..	30.00
Clean auto cast	42.00-43.00
Malleable	44.00

CINCINNATI

(Delivered consumer plant)

No. 1 heavy melting....	44.00
No. 2 heavy melting	40.00
No. 1 bundles	44.00
No. 2 bundles	38.00
No. 1 busheling	44.00
Machine shop turnings ..	27.00
Mixed borings, turnings ..	25.00*
Short shovel turnings....	29.00*
Cast iron borings	25.00

Cast Iron Grades

No. 1 cupola	43.00
Charging box cast	38.00
Stove plate	28.00*
Burnt cast	28.00*
Heavy breakable cast....	37.00*
Unstripped motor blocks ..	30.00
Brake shoes	29.00*
Clean auto cast	38.00
Drop broken machinery ..	48.00

Railroad Scrap

No. 1 R.R. heavy melt....	45.00
Malleable	45.00
Rails, 18-in. and under....	53.00
Rails, random lengths....	45.00

*F.o.b. shipping point.

No. 1 heavy melting....	41.00-42.00
No. 2 heavy melting....	37.00-38.00
No. 1 factory bundles	42.00-43.00
No. 1 dealer bundles	41.00-42.00
No. 2 bundles	35.00-36.00
No. 1 busheling	41.00-42.00
Machine shop turnings ..	22.00-23.00
Mixed borings, turnings ..	22.00-23.00
Short shovel turnings....	24.00-25.00
Cast iron borings	24.00-25.00
Cut structurals	43.00-44.00
Punchings & plate scrap ..	43.00-45.00
Electric furnace bundles ..	43.00-44.00

Cast Iron Grades

No. 1 cupola	39.00-41.00
Stove plate	33.00-35.00
Unstripped motor blocks ..	35.00-37.00
Clean auto cast	42.00-43.00
Drop broken machinery ..	44.00-45.00

Railroad Scrap

No. 1 R.R. heavy melt....	44.00-45.00
R.R. Malleable	39.00-41.00
Rails, 2-ft. and under....	50.00-51.00
Rails, 18-in. and under....	52.00-53.00
Angles, splice bars	47.00-49.00
Rails, rerolling	49.00-51.00

BIRMINGHAM

No. 1 heavy melting....	31.00-32.00
No. 2 heavy melting....	27.00-28.00
No. 1 bundles	29.50-30.50
No. 2 bundles	29.00-30.00
Machine shop turnings ..	20.75-21.75
Short shovel turnings....	22.75-23.75
Cast iron borings	22.75-23.75
Cut structurals	39.00-40.00
Electric furnace bundles ..	32.00-33.00

Cast Iron Grades

(F.o.b. Shipping Point)

No. 1 cupola	39.00-40.00
Charging box cast	30.00-31.00
Stove plate	35.00-36.00
Heavy breakable cast....	30.00-31.00
Unstripped motor blocks ..	34.00-35.00
No. 1 wheels	46.00-47.00

Railroad Scrap

No. 1 R.R. heavy melt....	35.00-36.00
Rails, 2-ft. and under....	45.00-46.00
Rails, random lengths....	42.00-43.00
Angles, splice bars	45.00-46.00
Rails, rerolling	45.00-46.00

ST. LOUIS

(Brokers' Buying Prices)

No. 1 heavy melting....	35.00-36.00
No. 2 heavy melting....	33.00-34.00
No. 1 bundles	34.00-35.00
No. 2 bundles	32.00
Machine shop turnings ..	18.00-19.00
Short shovel turnings....	20.00-21.00

Cast Iron Grades

No. 1 cupola	41.00-42.00
Charging box cast	33.00-34.00
Heavy breakable cast....	33.00-34.00
Unstripped motor blocks ..	33.00-34.00
Brake shoes	41.00
Clean auto cast	44.00
Burnt cast	33.00-34.00

Railroad Scrap

Malleable	36.00
Rails, 18-in. and under....	53.00-54.00
Rails, random lengths....	42.00-43.00
Uncut tires	44.00
Angles, splice bars	45.00-46.00
Rails, rerolling	49.00-50.00

BUFFALO

No. 1 heavy melting....	40.50-41.00
No. 2 heavy melting....	38.00-38.50
No. 2 bundles	36.00-36.50
No. 1 bundles	40.50-41.00
No. 2 busheling	40.50-41.00
Machine shop turnings ..	23.50-24.00
Mixed borings, turnings ..	23.00-23.50
Short shovel turnings....	23.50-30.50
Cast iron borings	29.00-29.50
Low phos.	44.50-45.00

Cast Iron Grades
(F.o.b. Shipping Point)

No. 1 cupola	37.00-37.50
No. 1 machinery	42.00-43.00

Railroad Scrap

Rails, random lengths....	45.75-46.75
Rails, 2 ft. and under....	51.75-52.75

BOSTON

(Brokers' Buying Prices; f.o.b. shipping points)

No. 1 heavy melting....	31.25-33.25
No. 2 heavy melting....	27.00-28.00
No. 1 bundles	32.00-34.00
No. 2 bundles	25.00-26.00
Machine shop turnings ..	17.50-18.00
Mixed borings, turnings ..	19.00-20.00
Short shovel turnings....	21.00-21.50
No. 1 cast	30.00-31.00
Mixed cupola cast	26.00-28.00
No. 1 machinery cast....	38.00-39.00

SEATTLE

(Delivered consumer plant)

No. 1 heavy melting....	31.00
No. 2 heavy melting....	27.00
No. 1 bundles	30.00
No. 2 bundles	24.00
No. 3 bundles	20.00
Machine shop turnings ..	15.00
Mixed borings, turnings ..	15.00
Short shovel turnings....	15.00
Electric furnace, No. 1....	38.00

Cast Iron Grades

(F.o.b. Shipping Point)

No. 1 cupola	30.00-35.00
Heavy breakable cast....	30.00-35.00
Unstripped motor blocks ..	29.00
No. 1 wheels	38.00-40.00

Railroad Scrap

Rails, random lengths....	38.00
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SAN FRANCISCO

No. 1 heavy melting....	28.00
No. 2 heavy melting....	24.00
No. 1 bundles	25.00
No. 2 bundles	22.00
No. 1 busheling	22.00
Machine shop turnings ..	10.00
Mixed borings, turnings ..	29.00
Short shovel turnings....	29.00
Cast iron borings	29.00
Cut structurals	38.00
Heavy turnings	34.00
Punchings & plate scrap ..	37.50
Electric furnace bundles ..	37.00

Cast Iron Grades

No. 1 cupola	38.00-39.00
Charging box cast	47.00
Stove plate	47.00
Heavy breakable cast....	45.00
Unstripped motor blocks ..	41.00
Brake shoes	41.00
Clean auto cast	52.00
No. 1 wheels	47.00
Burnt cast	41.00
Drop broken machinery ..	52.00

Railroad Scrap

No. 1 R.R. heavy melt....	37.00
Malleable	55.00
Rails, 3-ft. and under....	42.00
Rails, 18-in. and under....	45.00
Rails, random lengths....	39.00
Cast steel	40.00
Uncut tires	39.00
Angles, splice bars	42.00
Rails, rerolling	44.00

LOS ANGELES

No. 1 heavy melting....	24.00
No. 2 heavy melting....	20.00
No. 1 bundles	23.00
No. 2 bundles	20.00
Machine shop turnings ..	8.00

Cast Iron Grades

(F.o.b. Shipping Point)

No. 1 cupola	38.00-40.00
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HAMILTON, ONT.

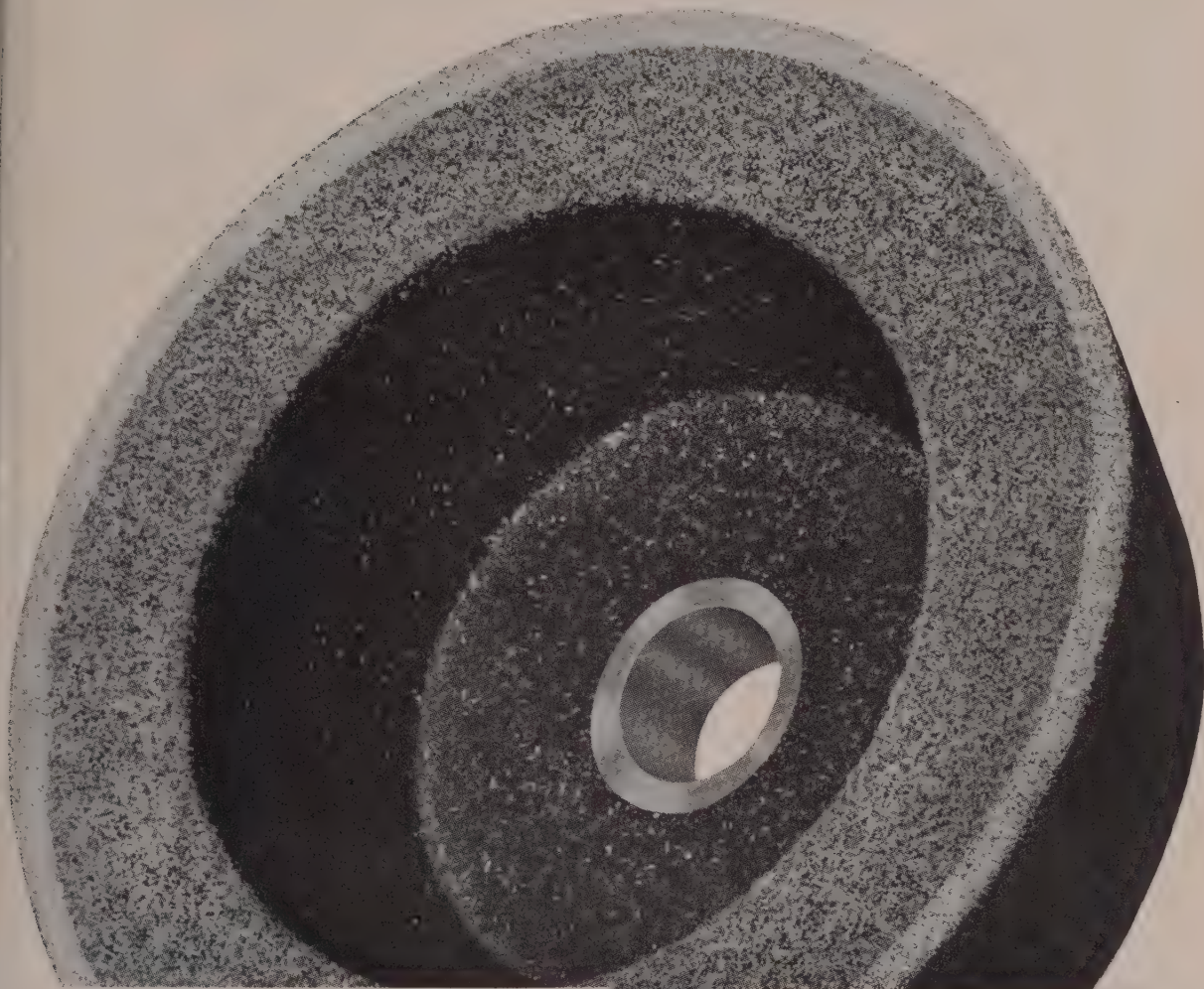
(Delivered Prices)

Heavy melting	\$32.50
No. 1 bundles	32.50
No. 2 bundles	32.50
Mechanical bundles	28.50
Mixed steel scrap	28.50
Mixed borings, turnings ..	26.50
Rails, remelting	32.50
Rails, rerolling	41.50
Busheling	26.50
Busheling new factory:	
Prep'd	30.50
Unprep'd	28.50
Short steel turnings	26.50

Cast Iron Grades

No. 1 machinery cast....	50.00
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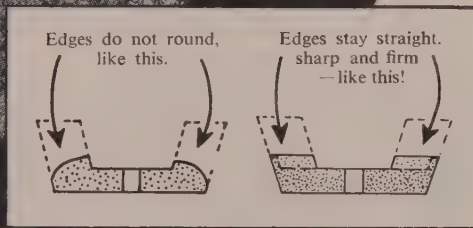
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in edge grinding...it holds
its sharp cutting edge



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Scrap . . .

(Continued from Page 203)

Laughlin Steel Corp. Advances on some grades were \$2 to \$3, while on railroad grades they were 50 cents to \$3. No. 1 heavy melting is \$44-\$45, delivered to consumers plant.

These price increases will prevent scrap from this district moving to the Youngstown district where prices have been higher.

Little movement of scrap is expected during July. Some mills say they are sufficiently stocked, and some will find their scrap needs reduced by summer vacations in the mills. One mill is closing down for two weeks for mass vacations of its employees.

Vacations in steel consuming plants will reduce the flow of production scrap.

Philadelphia—Steel scrap prices in this district have taken a substantial and definite upturn, based on new buying by several mills.

No. 1 heavy melting, No. 1 bundles and No. 1 busheling have been increased \$2 a ton to a range of \$43 to \$44 delivered, No. 2 heavy melting steel has been marked up to \$39, and No. 2 bundles to \$34 delivered.

Machine shop turnings are stronger at \$28, short shovel turnings at \$34 and heavy turnings at \$41 to \$42, delivered. Mixed borings and turnings and couplers, springs and wheels are unchanged; also structurals and plate, despite suspensions at three eastern consuming plants for mass vacations.

The only change in the cast grades is in No. 1 cupola and this is on the downside. This grade is now holding at \$38 to \$39, delivered.

Cleveland—For the moment the scrap market appears to be stabilized at the higher price levels established a week or so ago. The stronger market tone is a sentimental reflection of recent activity in the Valley since buying in this immediate district has been sluggish right along. Currently, vacation suspensions are resulting in a slowing down in the movement of scrap both in and out of dealers' yards. Some dealers are temporarily laying off workmen, anticipating a slow market through July.

Detroit—Slight price shifts downward last week were registered in No. 1 bundles and busheling and in low phos grades, while No. 2 grades and turnings moved up slightly. Some observers interpret this as indicative of return to normal market, eliminating abnormal spreads between No. 1 and No. 2 grades. Though some consumers are out of the market for inventory, demand is strong.

Cincinnati — Open hearth grades moved upward in price with changes ranging from \$2 to \$6 a ton. Cast iron borings, mixed borings and turnings added \$2 a ton while the other grades averaged \$3 a ton. Machine shop turnings climbed \$6. There are no significant changes in the cast grades.

Chicago—Purchases of scrap by a large mill in this district for July requirements have stabilized the recently rising market at a level as much as \$4 higher for some grades.

No. 1 heavy melting steel is up \$4 to \$42, No. 2 heavy melting up \$2 to \$38, No. 2 bundles up \$2 to \$36 and No. 1 railroad heavy melting up \$2 to \$45.

Blast furnace grades have risen \$2 and there is some slight additional strength in foundry items.

Steelmaking scrap is being melted in all-time high volume and part of the renewed price strength stems from the reduced tonnage moving as compared to 60 days ago.

St. Louis—Steel scrap buying continues slow, but brokers expect a pickup after July 4 accompanied by a slight rise in prices. Mill stocks are still comfortable although receipts remain less than daily melt. Purchasing agents generally are awaiting post-holiday price developments and expiration of June contracts. Dealers are extremely short of yard scrap and expect the shortage to get worse as the industrial vacation season expands, reducing flow of plant scrap. Rail prices continue firm, with considerable speculative buying going on.

Birmingham—Scrap prices remain unchanged this week with little happening to demand. A high proportion of melting steel moving is going to other producing centers, and the market is slack for most cast grades.

Los Angeles—Scrap prices are stabilized momentarily and are expected to hold through July. No. 1 bundles are down \$1 to \$23. Prices of foundry scrap, currently \$38 to \$40, are expected to soften as melters start annual vacations July 1.

San Francisco—The scrap market is holding steady with indications it likely will continue so through July. Dealers say there is no surplus. Mills are taking all the steel grades offered and deliveries are about equivalent to melt. Present mill inventories are sufficient for about three months.

Seattle—Foundry operations are at seasonal peaks, operators reporting all materials in plentiful supply. Scrap, particularly cast iron, is in excess of current demands, some large buyers being out of the market, with inventories ample.

Iron Ore . . .

Iron Ore Prices, Page 201

Cleveland — Other Lake Superior iron ore sellers have followed the move of Cleveland-Cliffs Iron Co. and advanced their ore prices on shipments beginning July 1. The increases, amounting to about 15 cents per gross ton, reflect higher wages and other costs.

Ore continues to move down the lakes in record volume. Shipments in the week ended June 29 totaled 3,317,475 gross tons, largest for any June week on record, and second only to the all-time weekly record of 3,384,481 tons in the week ended Sept. 8, 1952. Shipments totaled 58,365 tons, in the like week a year ago, the ore mines being down in the steel strike.

Cumulative shipments to date this year now stand at 35,347,393 gross tons, comparing with 21,495,763 in the like period of 1952. Preliminary figures indicate total June shipments this year broke all previous records.

Canada . . .

Ottawa, Ont.—April production of pig iron and steel ingots increased sharply over 1952 production, according to the Bureau of Statistics, but output of steel castings was down slightly.

The month's production of pig iron amounted to 241,583 net tons, compared with 214,330 in April, 1952. The aggregate output for the four-month period was 949,943 tons, compared with 863,400 tons a year earlier.

Steel ingot production was 351,907 tons, compared with 304,956 last year. Cumulative total was 1,364,753 tons compared with 1,232,908 tons. Steel castings in April totaled 10,385 tons, compared with 11,685 tons a year earlier.

Hamilton, Ont.—The Steel Co. of Canada, Ltd. is turning out steel sheets for automobile bodies for the

transformers

built to your specifications

Take advantage of our more than 40 years' experience in manufacturing and re-building industrial transformers. Complete satisfaction guaranteed.

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Flat, 50-Ton, Steel Underframe, 40'6" Long

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Gondolas, Composite, or All Steel 50-Ton and 70-Ton

Hoppers, Twin, All-Steel, 50-Ton, Cross Dump

Ore Hoppers, All-Steel, 50-Ton, Heavy Duty

Tank, 3,000-Gallon, High Pressure

Tank, 8,000-Gallon, Coiled and Non-Coiled

EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

70-Ton Capacity, Length 60'0", All-Steel, Fishbelly Underframes

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End Dump, 20-Yd., 50-Ton, Drop Door

Side Dump, 30-Yd., 50-TON, DROP DOOR

STANDARD GAUGE DIESEL-ELECTRIC ROAD SWITCHING LOCOMOTIVE

300 H.P., 70-Ton, Type 0-4-4-0

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TWENTY SEVEN YEARS' CONTINUOUS EXPERIENCE in fabricated structural steel, plate work, miscellaneous and ornamental iron and building products. Thoroughly experienced in sales, estimating, drafting, design and production. Age 46 years, married, best of references. Prefer location in Louisiana, Texas or Florida. Available in thirty days. Write Box 765, STEEL, Penton Bldg., Cleveland 13, Ohio.

PLANT MANAGER—15 years' experience in Plant Management, Production Control, Accounting Problems, Manufacturing Development, etc. Could invest. Small manufacturing plant preferred. Age 45, married, family. Write Box 738, STEEL, Penton Bldg., Cleveland 13, Ohio.

Help Wanted

SUPERINTENDENT for light steel fabricating plant located in Mid-South. Alloy and carbon steel work. Modern equipment, 50 employees. An excellent opportunity for a man who can grow with a growing company. Give full information including salary desired. Address Box 761, STEEL, Penton Bldg., Cleveland 13, Ohio.

SHOP FOREMAN for miscellaneous and ornamental iron department who can take complete charge of fabrication in this department. Location in New Orleans. State age, qualifications, experience, and salary expected in first reply. Write Box 764, STEEL, Penton Bldg., Cleveland 13, Ohio.

Employment Service

SALARIED POSITIONS \$3,500 To \$35,000. We offer the original personal employment service (established 43 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC., 110 Dun Bldg., Buffalo 2, N. Y.

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1—#6 HILLES & JONES VERTICAL OPEN SIDE BAR SHEAR, CAPACITY 3½" ROUNDS, INCLUDING 15 HP, 230 VOLT D.C. MOTOR. EST. WT. 50,000 LBS.

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Rewind or tension reel for strip steel 42" to 48".

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Bar or Tube Draw Bench, 20,000 to 30,000 lb. capacity. Give full particulars in reply.

Box 763, STEEL,

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Casting, cleaning department of foundry making gray iron castings 1 lb. to 500 lbs. Force of 110 men doing grinding, chipping, inspection, shipping. Must be good executive and organizer. Starting salary \$475 plus bonus.

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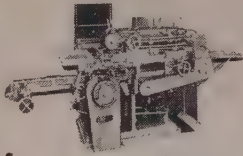
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STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

- 5000 tons, state thruway bridge, Herkimer county, New York, through L. G. De Felice & Son, North Haven, Conn., to Bethlehem Steel Co., Bethlehem, Pa.
- 5000 tons, pot line buildings, Anaconda Aluminum Co., Columbia Falls, Mont., to American Bridge Division, United States Steel Corp., Pittsburgh.
- 3500 tons, bridges, New York state thruway, Mohawk Division, Herkimer county, to American Bridge Division, United States Steel Corp., Pittsburgh; Lane Construction Co., Meriden, Conn., general contractor.
- 160 tons, additional facilities, Westover Field, Chicopee, Mass., to A. O. Wilson Structural Co., Cambridge; Gilbane Construction Co., Providence, general contractor.
- 1700 tons, trusses, purlines, etc., for roofs of Army buildings, Fairbanks, Anchorage and Fort Richardson, Alaska, to Leckenby Structural Steel Co., Seattle.
- 1350 tons, state thruway bridge, Rockland county, New York, through L. G. De Felice & Son, North Haven, Conn., to Harris Structural Steel Co., New York.
- 915 tons, state thruway bridge, Herkimer county, New York, through Lane Construction Co., to Buffalo Steel Fabricators, Buffalo.
- 800 tons, container plant, American Can Co., Newton, Mass., to Bethlehem Steel Co., Bethlehem, Pa.; Turner Construction Co., Boston, general contractor.
- 800 tons, state thruway bridge, Schenectady county, New York, through Weber Construction Co., to American Bridge Division, United States Steel Corp., Pittsburgh.
- 540 tons, garage and administration building, Triboro Coach Corp., Queens, New York, to Klein Steel Fabricators, Long Island City, N. Y.
- 330 tons, state bridge, Erving-Montague, Mass., to Bethlehem Steel Co., Bethlehem, Pa.; Daniel O'Connell's Sons Inc., Holyoke, Mass., general contractor.
- 371 tons, Willis Avenue bridge approaches, New York, to Schacht Steel Construction Inc., that city, through Woodcrest Construction Co.
- 300 tons, building addition, Cambridge Electric Co., Cambridge, Mass., to A. O. Wilson Structural Co., Cambridge; direct by owner.
- 265 tons, additional tonnage, Wyman-Gordon Co., press program, Worcester, to A. O. Wilson Structural Co., Cambridge; Gilbane Building Corp., Providence, general contractor.
- 200 tons, craneway for Boeing Airplane Co., Seattle, to Leckenby Structural Steel Co., Seattle.
- 185 tons, bridge, Concord-Boscawan, N. H., to Lyons Iron Works, Manchester, N. H.; Landers & Griffin Co., Portsmouth, N. H., general contractor.
- 100 tons, plant, Manhattan Shirt Co., Lexington, N. C., through Sanworth Hughes Co., to Calvert Iron Works Inc., Atlanta.
- 100 tons, lift structure for Seattle City Light Department, to Pacific Car & Foundry Co., Seattle.

STRUCTURAL STEEL PENDING

- 6500 tons, car repair shop, Pennsylvania railroad, Hollidaysburg, Pa., bids July 20.
- 1150 tons, state viaduct, Buffalo, Bates & Rogers, Chicago, low on general contract.
- 360 tons, two structures Hanford Works, Sound Construction & Engineering Co., Seattle, low.
- 310 tons, central heating plant, Fort Dix, N. J., Charles Simkin & Son, Perth Amboy, N. J., low on general contract.
- 275 tons, facilities building, Navy, Trenton, N. J., Belli Co., low on general contract.
- 270 tons, District of Columbia bridge, Washington, Troitino & Brown, low on general contract.
- 218 tons, state bridge, Bucks county, Pennsylvania, bids July 24; also 176 tons of reinforcing bars.
- 215 tons, county bridge, York, Pa., bids July 9.
- 200 tons, state bridge, Bucks county, Pennsylvania, bids July 31.

- 100 tons, heating plant, Mountain Home, Idaho, project; bids to Bureau of Reclamation, July 7.
- 100 tons, addition to Hanford Works; bids to Kaiser Co., July 8.
- Unstated, bulkheads, slide gates, etc., Lucky Peak dam; bids to U. S. Engineer, Walla Walla, Wash., July 21.
- Unstated, trash racks, beams, etc., Chief Joseph dam; bids to U. S. Engineer, Seattle, Aug. 17.
- Unstated, access structures, etc., reactor testing station, bids to Atomic Energy Commission, Idaho Falls, Ida., July 15.
- Unstated, steel frame fertilizer plant; bids soon to Carstens Packing Co., Tacoma, Wash.

REINFORCING BARS . . .

REINFORCING BARS PLACED

- 2300 tons, Hanford Works disposal tanks, to Bethlehem Pacific Coast Steel Corp., Seattle; Grove, Shepherd, Wilson & Kruge, Seattle, general contractors.
- 350 tons, three concrete rigid frame bridges, Westerly and Burnwell, W. Va.; bids July 14, West Virginia Turnpike Commission, Charleston.
- 100 tons plus, Fort Richardson, Alaska, installation and miscellaneous, to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

- 335 tons, Washington state, Lewis county highway bridges; general contract to N. Florito Co., Seattle, low \$462,506.
- 176 tons, state bridge, Bucks county, Pennsylvania, bids July 24; also 218 tons of shapes.
- 175 tons, Washington state highway jobs; bids to Olympia July 14.
- 100 tons, 320-ft concrete bridge, Payette river, Idaho; Neilson & Smith, Construction Co., Twin Falls, low \$60,382.
- Unstated, 4-story addition to Western state hospital, Steilacoom, Wash.; Dolph Jones, Tacoma, low \$1,167,000.
- Unstated, 4-story addition to Bon Marche department store, Seattle; Bennett Campbell, Inc., Seattle, low \$1,549,274.

PLATES . . .

PLATES PLACED

- 1700 tons, disposal tanks, Hanford Works, to Consolidated Western Steel Corp., Seattle.
- 1000 tons, additional tonnage to previous contract, pipe line, Hanford Works, to Consolidated Western Steel Corp., Seattle.
- 1000 tons, oil storage tank, Buckley Development Co., Bridgeport, Conn., to Bethlehem Steel Co., Bethlehem, Pa.
- 600 tons, tank additions to Edmonds, Wash., plant of Union Oil Co., to Chicago Bridge & Iron Co., Seattle.
- 500 tons, (estimated) 72-in. penstock Bridge river plant of British Columbia Electric Co., to Dominion Bridge Co., Ltd., Vancouver, B. C.
- 125 tons, elevated tank, Great Falls, Mont., air base, to Chicago Bridge & Iron Co., Seattle.
- 100 tons, classified project, near Richland, Wash., to Chicago Bridge & Iron Co., Seattle.

PIPE . . .

CAST IRON PIPE PLACED

- Unstated, 1700 ft., 30-in. water mains, Hanford Works; Valley Construction Co., Seattle, low \$53,531, for installation to A. E. Com.; which will furnish material.

CAST IRON PIPE PENDING

- Unstated, 5200 ft., 8 in. and smaller; bids to Port Madison, Wash., July 3.
- Unstated, salt water intake, Tacoma municipal steam power plant; Atlas Foundry & Machy. Co., Tacoma, low \$13,846 for cast iron; alternatives also submitted.

STEEL PIPE PLACED

- 1000 tons fabricated pipe for North side trunk main, Toledo, O., Kalili Co., low bidder.

STEEL PIPE PENDING

- Unstated, 3265 ft., 14 and 12-in. welded steel, Fairbanks, Alaska, system expansion; L. B. McKinney, Fairbanks, low \$796,382; awarded subject to availability of funds.

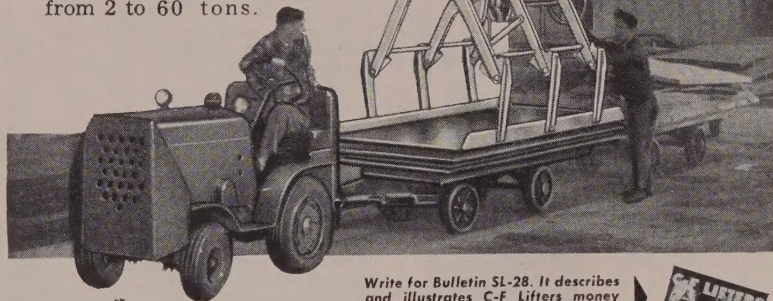
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C-F Lifters give you the fastest, cheapest and safest way to handle loose or bundled sheet steel or plate. 1 man operation saves labor; infinite adjustments of Lifter jaws permit it to handle many widths of steel . . . wide carrying angles hold packs securely, won't damage even highest grade sheets. C-F Lifters are made in standard and semi-special models with capacities from 2 to 60 tons.



Write for Bulletin SL-28. It describes and illustrates C-F Lifters money and time saving advantages.



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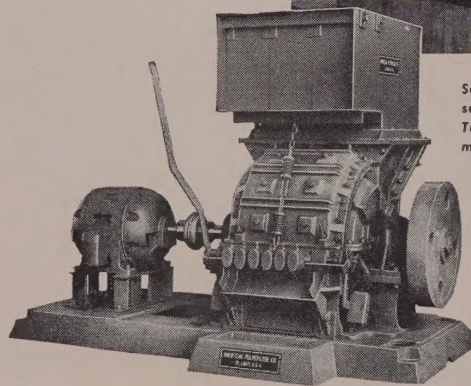
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Long, curly turnings of steel, alloys, brass, aluminum, etc., are rapidly reduced to easily-handled chips requiring only a fraction of usual storage space and increasing cutting oil reclamation to 30 to 50 gallons per ton.

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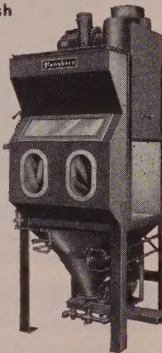
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HERE ARE
2 ANSWERS
TO YOUR
PRODUCTION PROBLEMS!

**Pangborn cuts costs,
saves time**

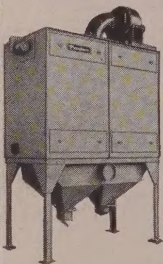
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Portable model cleans structures, bridges, tanks, quickly and economically... \$188 and up. Stationary cabinet saves time and money cleaning small metal parts... \$319 and up.

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Look to Pangborn for the latest developments in Blast Cleaning and Dust Control equipment

Pangborn
BLAST CLEANS CHEAPER
with the right equipment for every job

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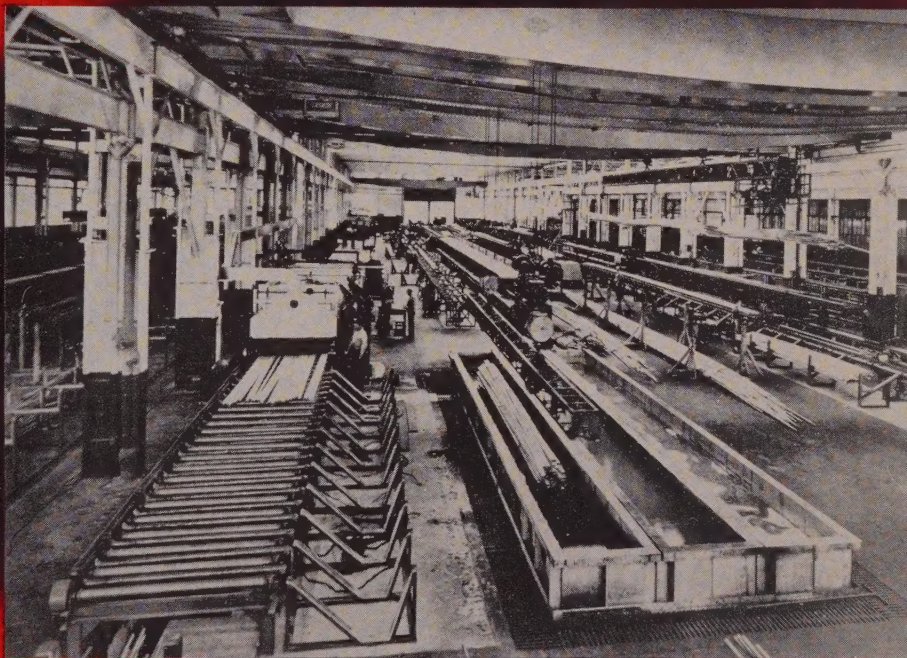
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BRINGS
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PRODUCTION
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• Whatever the requirement for cold drawing equipment, Aetna-Standard can deliver. This company specializes in cold drawbenches, wire drawing and other equipment for drawing steel, copper, brass, aluminum and other ferrous and non-ferrous materials. Aetna's benches range in pulling capacity from 1,000 to 300,000 pounds pulling capacity with single, double or triple drawing.

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Aetna-Japan Company, Ltd., Tokyo, Japan — Japan.

Hale & Kullgren, Inc., Akron, Ohio — Representative for the Rubber Industry.

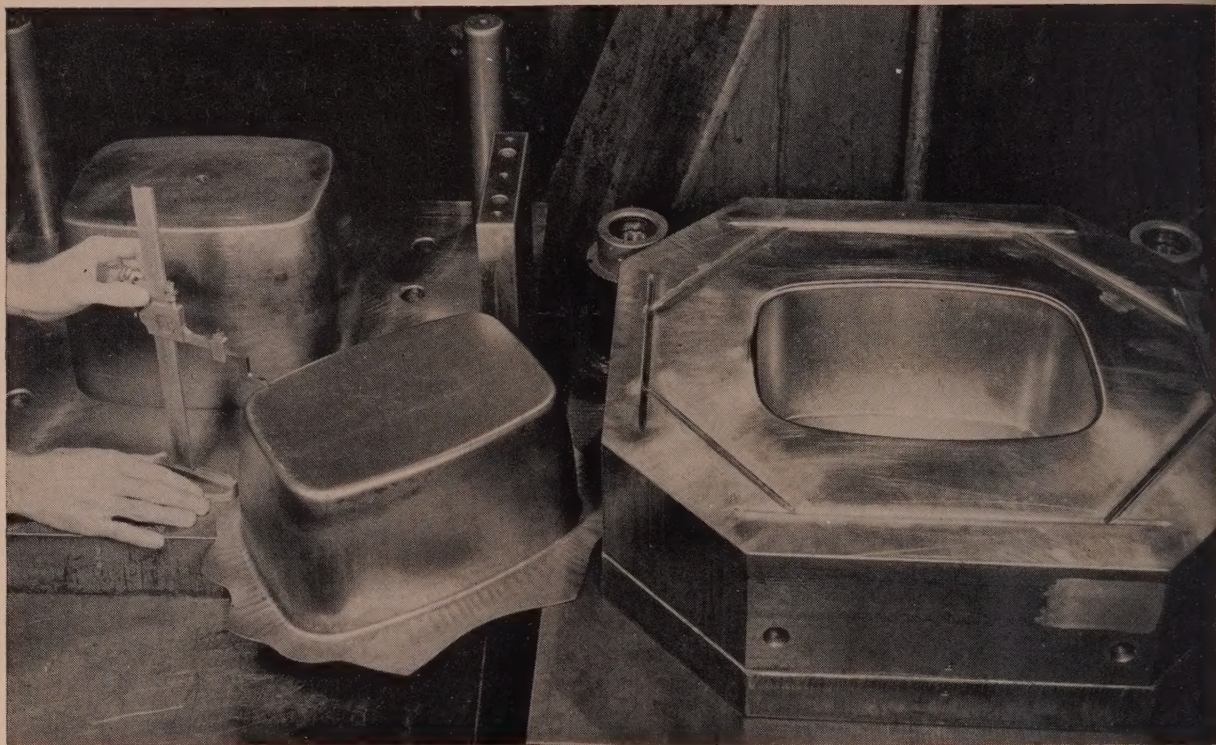
THE AETNA-STANDARD ENGINEERING COMPANY • PITTSBURGH, PA.

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*Designers and Builders to the Ferrous,
Non-Ferrous, Leather, Rubber, and Plastic Industries*

Graph-Mo[®] steel die draws contour shell 5⁷/₈" deep without scoring!



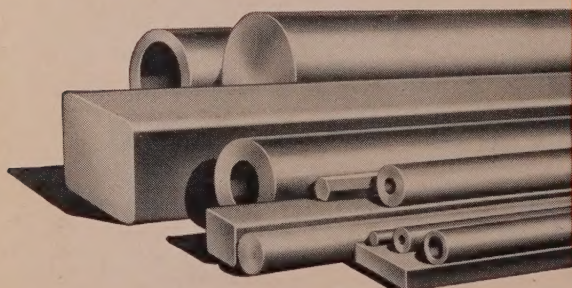
TO keep production up and finishing costs down when deep drawing contour shells for home fryers, the Dickey Grabler Company, Cleveland, Ohio, uses dies made of Graph-Mo[®]—one of four Timken[®] graphitic tool steels.

Because of the free graphite in its structure, Graph-Mo has outstanding low-friction properties: minimum tendency to score, seize, scuff or gall. As a result, Graph-Mo dies make the difficult 5⁷/₈" deep contour draw without scoring the stamping. Costly polishing before the chrome-plating operation is eliminated, die life increased.

Graph-Mo offers other die advantages, too. The diamond-hard carbides in Graph-Mo give excellent resistance to wear and abrasion. It responds uniformly to heat-treatment, permitting closer tolerances in the parts. It has good stability, and is easier to machine than ordinary tool steels.

For more helpful information on the four Timken graphitic tool steels and their uses in dies, punches, gages and machine parts, write for the 10th edition of "Timken Graphitic Steel Data Book". The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH



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